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GENERAL NEWS SECTION 603

THE annual convention of the American Association of General Passenger and Ticket Agents at St. Paul, Minn., last week was one of the best meetings this organization has ever held. There is, we suspect, a belief in some quarters that its gatherings are in the nature of junkets. If this ever was the case, it is not now. There are many problems connected with the passenger service which can be better solved by co-operative study and investigation by the passenger officers of all the roads than by them individually, and to a number of these problems the association has been addressing itself with good results. A disposition to attempt in this way the solution of more numerous problems was indicated by the tone of the St. Paul meeting and by the inaugural remarks of the new president of the association, C. A. Cairns of the North Western. Among the matters mentioned by Mr. Cairns to which he thought the association should give attention, is that of making changes in advertising methods which would render railway advertising no less effective but more economical, and that of having printed annually or semi-annually a manual of coupon tickets. One very important subject which was on the docket for this year's meeting, but consideration of which was postponed to next year, was that of charging extra fares for extra passenger service. The subject may have been suggested by the announcement of the Atchison, Topeka & Santa Fe that it will this winter put in service from Chicago to California a new "train de luxe," on which an extra fare of $25 will be charged. In order to make sure that all the important problems which the association should consider will be brought before it, a committee was appointed at the suggestion of President Cairns to co-operate with the secretary in preparing the docket for next year's meeting. The developments of recent years have increased the importance of the passenger business in the eyes of railway men. The earnings from it have on the average grown slightly more in proportion than the earnings from the freight business, and, at times, when the freight business has violently declined, the passenger business has stayed as good as before, or become better. There can be no serious question that it does not contribute to railway earnings in proportion to what it costs, but it seems probable that as population throughout the country becomes denser and more uniform the ratio of passenger to freight earnings will steadily increase. If this be true the proper solution of problems relating to its satisfactory and economical handling will grow more important, and the importance and usefulness of the work of the principal association studying these problems will likewise increase.

THE subject suggested by the decision of the Santa Fe to put in service an excess fare train is one of the most important to which the passenger men can give consideration. It is a remarkable fact that while there has been for years a progressive differentiation in the kind of passenger service rendered by the railways of the United States, there has been no corresponding differentiation in the charges made for it. On most roads there is one rate for the passenger who rides in the day coach. If he should choose to ride in a sleeping or parlor car he pays in addition the sleeping or parlor car rate. If an observation car be added the passengers in the standard sleeping cars get the use of it without any additional charge. If, further, a buffet smoking car be added they get the use of it also without any additional charge. On most roads the passenger likewise pays the same rate whether he rides in a sleeping car on a slow train which has neither an observation nor a buffet smoking car or travels on a much faster train on which there are both of these kinds of cars. The only roads on which excess fares heretofore have been charged for extra service are the lines between Chicago and New York, the extra fares in these cases being based on differences in schedule time. Obviously, the passenger on the fast train equipped with an observation car, a buffet smoking car, a valet, a barber, a maid, a victrola, etc., and who, perhaps, is served a table d'hote dinner which costs the railway a good deal more than he pays for it, is given a service which costs the railway more, and is worth more to him than is that given on an ordinary and much slower train; and there is no logic in charging the same rates on both. The United States is the only leading country in the world where the flat passenger rate has obtained. In England there are three classes of passenger service and rates, not including working men's rates, etc. In Prussia there are four classes of rates and service, and in France, three classes. In Hungary and Austria there are three classes of express trains and three classes of accommodation trains, on all of which the rates are different. The result of the charging of flat passenger rates in the United States has been that for some service more has been charged than it has been worth, and in other cases more service has been given than has been charged for. A more scientific differentiation of passenger charges could be made which would bring in greater revenue to the roads, and at the same time more nearly give to all persons service of the kind and cost that they want.

THE RAILWAYS AND DEFEATED RECIPROCITY.

WHEN trade, whether within or across national boundary lines, increases, the railways get a large part of the increase. The political avalanche in Canada has swept into the future trade reciprocity between two industrious and cognate people. Directly and immediately the future loss has fallen on the border railway systems. But the remoter railway traffic would probably have been considerable. Take such staples alone as grain, cattle and lumber affected by the reciprocity agreement, saying nothing of such products as those of the smaller fields and the dairy. Such traffic has obviously a far wider distribution than border territory. Allowance must also be made for prospective natural development of railway business to and from a country which in 1910 had a railway single trackage of 31,429 miles, a capital cost of $1,719,069,401, and which has largely expanded her railway system during the past year. All these possibilities have been much impaired, if not destroyed, by a sentimental campaign cry and the raising of the ghost of "annexation." But the loss is fortunately potential instead of actual. Both countries lose something which they had not yet obtained.

There remain also still the natural conditions which make for railway extension between the two countries. Governments may desire theoretically to protect their own railway corporations against invading interests, and the electorate, in the doctrinal sense, may share the same view. But in such cases local interests are almost certain to be controlling. No central authority can set itself up for long—even if autocratic—against the local advantages of a community seeking urgently a new railway, even if such a new line does not break a monopoly; and on each side of our northern boundary line there is not an autocracy, but a federation of states or provinces. The New Haven has practically already, without resistance, pushed its way into Canada. On the other hand, the Grand Trunk's invasion of New England has been warmly and officially welcomed in Massachusetts and Rhode Island. If this is the case in such old communities, it is even more true of the western boundary where the Hill lines and the Canadian Pacific are rivals for the new wheat fields, and where the staple and almost exclusive product must seek by the railway a distant market. No community rejects a new railway line unless it has to tax itself for construction—not very often even then. The rejection of reciprocity may retard the criss-crossing of the border by new railway lines. It is very far from checking it, but the new lines may have to wait longer for profitable traffic.

Turning from the international aspects of the subject to Canada herself, there would be a very interesting situation disclosed if politics and partisanship really "meant business," and the parliamentary utterances of the coming premier, Mr. Borden, and other opposition leaders, forecasted genuine policies. Reading past debates in the Canadian parliament, it would seem as though the incoming Conservatives were committed to a pretty radical overhauling of the details of the old government policy. In connection with the building of the Grand Trunk Pacific, no accusation was too severe to charge against the Laurier administration. As now recalled, special stress was laid on the failure of the Laurier cabinet to compel the Grand Trunk to seek and develop terminals in the maritime provinces rather than transfer business to New England. But all this was "before election." Nor did railway questions—a delicate subject for each party to handle on the stump—figure in the canvass, nor have we thus far seen any reference to them as influencing the unlooked for result at the polls. Conditions now shift about, and criticism, if it comes at all, against the elements of a general policy of government railway promotion to which both sides are committed will come from the new opposition and Liberal side. There may be some attempt of the Conservatives, newly in office, to expose old shortcomings in the lavish railway policy, but even that is unlikely when the party in power is entrenched behind a large working majority of the Commons—and, if the Canadian precedent is followed, likely to be entrenched for a good many years.

Indeed, it seems more than probable that the Conservative leaders will surpass their outgoing rivals in their policy of subsidies and rapid railway development, especially in the Canadian West, in which, as a whole, the Conservatives have been weak, and where low tariff sentiment, as against the high tariff policy for the benefit of the East, must be placated. In that great and growing region of the wheat farms there is a political and party motive to encourage railway expansion. But there is also a more general motive. During the campaign "Canada for the Canadians" was a slogan. The outlined Liberal policy, that is to say, has been acutely nationalistic, and with that policy rapid railway extension obviously squares. If there are new railway issues to spring up in Canada they are much more likely to arise from the rivalries of the Canadian Pacific and the Grand Trunk than from any deviations of governmental programs.

THE GOVERNORS AND THE MINNESOTA RATE CASE.

THE state governors who met recently at Spring Lake, N. J., appointed a committee headed by Governor Harmon of Ohio to appear before the Supreme Court of the United States when the Minnesota rate case comes before that body. Its duty will be to defend states' "rights" from the destruction which the governors would have us believe would result from an affirmance by the Supreme Court of the decision rendered by Judge Sanborn of the United States Circuit Court in the case mentioned.

In order to comprehend just what Judge Sanborn's decision means, and just what would be meant by such a decision as the committee of governors will try by extra judicial pressure to get from the Supreme Court, it is necessary to consider both the legal and economic aspects of the Minnesota case. The federal constitution empowers Congress to regulate interstate and foreign commerce. There is reserved to the states the power to regulate commerce within their borders—an authority which it repeatedly has been held must not be so exercised as to burden or interfere with interstate commerce.

The state traffic of railways is a relatively small part of the total. For many reasons it costs more per ton mile and per passenger mile to handle than interstate traffic does, the principal of these reasons being that state hauls are on the average much shorter than interstate, and are more commonly made on branch lines where operating expenses are high in proportion to the amount of traffic. Because it does ordinarily cost more to handle state than interstate traffic, the state rates should ordinarily be higher per ton per mile than the interstate rates. The state rates cannot ordinarily be reduced below the interstate rates without forcing reductions in the interstate rates. A traveler going from a point in Illinois to a point in Missouri, or from a point in Minnesota to a point in South Dakota, would not pay an interstate rate of 3 cents a mile if the several states had fixed a rate of 2 cents a mile. He would pay 2 cents a mile to St. Louis, for example, get off there and buy a new ticket, paying 2 cents a mile to his destination. For similar reasons it is impossible to long maintain interstate freight rates higher than state freight rates.

The legislature and railway commission of Minnesota fixed both passenger and freight rates which were lower than the interstate rates. The result was to compel the railways either to reduce their interstate rates, or, if they maintained them even temporarily, unfairly to discriminate against interstate commerce. They reduced them. Judge Sanborn held most explicitly that the states have a right to regulate rates within their borders so long as they do not burden or interfere with interstate commerce, but that when, as in this case, the necessary effect of state regulation is to compel reductions in interstate rates, or discrimination against interstate commerce, the regulation burdens and interferes with interstate commerce, and is unconstitutional.

It would be uncivil to assume the governors were ignorant of

the fact that Judge Sanborn explicitly held that the states will have, as they always have had, the power to regulate rates within their own limits when such regulation does not interfere with interstate commerce. Their protest against his decision must then mean one of two things:

(1) It may mean that they do not believe that a reduction of state rates below the corresponding interstate rates necessarily pulls down the latter, and think that the states have a right to make state rates lower than the corresponding interstate rates. If this is the case, their position is that the states have a right to compel the railways to accept lower rates for the more costly state transportation than they receive for the less costly interstate transportation. In other words, while the state commissions uniformly take the position that the railway may not entirely disregard cost in fixing rates, the governors take the position that the states may, in fixing rates, make a lower rate for the more expensive state haul than Congress and the Interstate Commerce Commission permit the railways to charge for the less expensive interstate haul.

(2) If, on the other hand, the governors recognize the fact that a reduction of state rates below the corresponding interstate rates will compel a reduction of the latter, then they are contending that the states have a right to reduce state rates even when the direct and necessary effect will be to compel reductions in interstate rates. It may be said that if it can be shown that on the existing state rates the railways are earning more than a fair return, the states should have a right to reduce them regardless of the effect on interstate rates. But while it has been held that rates, either state or interstate, may not be so reduced as to deprive railways of a fair return, it has not been held that railways may not be permitted to earn as much more than the so-called fair return as the regulating authority may deem expedient. Therefore, Congress and the Interstate Commerce Commission have authority to let the railways earn from their interstate business not merely 6 per cent., or 7 per cent., but much more, if they regard this as in the public interest. In the exercise of the authority given it by Congress the interstate commission has fixed rates from Atlantic seaboard points and Chicago to the Missouri river and to Denver, from Chicago and numerous points to the southwest, and is now trying to fix rates from all points in the United States on and east of the Missouri river to Spokane, Salt Lake City, Reno, Phoenix and other so-called intermountain points. In other words, the commission has fixed, or is fixing, rates which cover almost the entire United States. These rates have been ordered in pursuance of a policy which the commission as the agent of Congress believes to be right. Now, obviously, if each state may reduce the rates within its borders, and the reduction of the rates of each state compels reductions in interstate rates, it necessarily follows that the states may compel reductions in all the rates which the Interstate Commerce Commission has fixed as reasonable, thereby completely nullifying the policy of regulating interstate commerce, which has been constitutionally adopted by the commission and by Congress.

It appears, then, that the position of the governors is that the states have a right to regulate their internal commerce as they please, regardless of the extent to which this regulation may discriminate against or interfere with interstate commerce, and regardless of the extent to which it may nullify the policy that the federal government adopts for the regulation of interstate commerce. But it has always been held that the power of the nation to regulate interstate commerce is supreme and exclusive. Therefore to say that in assuming the attitude they are the governors defending states' "rights"—that they are trying to prevent usurpation of the power of the states by the federal government—is wholly incorrect. What they are seeking to do is to establish states' "rights" with reference to interstate commerce which never existed and to secure for the states powers which they never possessed. This being the case, if the Supreme Court makes short work of their representations nobody who understands the true situation will be much surprised—not even the lawyers among the governors themselves.

ILLINOIS CENTRAL.

HAVING set its house in order, the Illinois Central turned to and, in the fiscal year 1911, earned $3,500,000 surplus after the payment of 7 per cent. dividends, as compared with a surplus of $180,000 in the previous year; this despite uncertainty in general business conditions, increased wages and increased fuel costs. Gross earnings in 1910 were the largest in the history of the company, but in 1911 the road earned $60,980,000, or 5.34 per cent. more than in 1910.

To turn to history for a moment it was natural that, after such a bitter fight for control as that which took place on the Illinois Central in 1907 and after the displacement of Stuyvesant Fish, who had been in such complete control of the property and so close to its operation, there should be a period of uncertainty and disorganization in the affairs of the company. Even if Mr. Harriman himself had become president of the Illinois Central, it is probable that he would have needed some time to gain the entire loyalty of the officers. The lack of strong control and co-operation among all the officers was manifest in various ways, the most glaring of which was the organized scheme by which certain officers of the road were able to steal money from their company through the expenditure made for car repairs. This had a far reaching effect that was possibly even more detrimental in its indirect consequences than in the direct loss of money to the company. In 1910 the company cleaned house, and the principles of operation which have done so much to make the Union Pacific what it is were introduced on the Illinois Central. It is inconceivable that the extraordinarily good results shown this year are not due in part to the new operating head of the company who received his training on the Union Pacific.

The property itself, as well as the annual report for 1911, is testimony to this fact. It is manifest in the property in innumerable small ways, even to the straightening of the toe line; it is evident in the greater frankness of the annual report in the inclusion of detailed figures for maintenance and transportation figures, figures which are even more detailed than those required by the Interstate Commerce Commission's classification.

The problem on the Illinois Central in recent years has been to handle the traffic that offered itself for carriage. The main north and south line of the Illinois Central runs from Chicago to New Orleans; the western lines, so-called, run from Sioux Falls, Sioux City, Onowa and Omaha to Chicago. It has been the habit in speaking of the Union Pacific to say that its own lines end at Omaha, its principal interchange of traffic for Chicago being with the Chicago & North Western. As a matter of fact, of course, the Illinois Central's western line is the eastern end of the Harriman Lines running directly from San Francisco to Chicago. The Chicago & North Western, with its double-track road, can offer facilities of interchange on passenger traffic that makes it more advantageous for the Union Pacific to send its through passenger trains to Chicago over this road; but there is a very large volume of freight business exchanged between the Illinois Central and the Union Pacific at Omaha.

It is, however, on the north and south line that the principal efforts of the management to increase the facilities have been bent. The details of these efforts do not permit even of outlining in these comments. Last year $3,580,000 was spent for addition and improvements, of which $165,000 was charged to income. The results, however, are plain to read in the company's report for this year.

The company, operating 4,563 miles, earned from freight revenues in the fiscal year ended June 30, 1911, $40,680,000, an increase of $1,900,000 over the previous year. The company earned $12,930,000 from passengers last year, an increase of $1,046,000 over the year before. The increase in freight revenue was due to a longer average haul and to a higher average revenue per ton per mile and not to a greater amount of freight carried. The increase in passenger revenue was due to an increased number of passengers, a slightly longer haul and a slightly higher average revenue. The tons of revenue freight carried in 1911

totaled 27,490,000; in 1910, 27,590,000. The average haul was 243 miles last year, and 238 miles the year before; the average revenue per ton per mile was 0.609 cents in 1911, and 0.589 cents in 1910. The number of passengers carried totaled 26,800,000 in 1911, and 25,240,000 in 1910. The average haul in the two years was 26.10 miles in 1911, and 25.76 miles in 1910; the average revenue per passenger per mile was 1.848 cents last year, and 1.827 cents the year before. The increase in passenger business, while probably in part due to the more active work of the traffic department, is quite surely also due to the better facilities which the operating department provided, the fewer delays to trains, and the elimination of delays at Chicago.

The longer haul for freight and the higher revenue per ton per mile are accounted for by the considerably greater activity in the traffic department last year, as evidenced by the establishment of a new commercial agency at Minneapolis, Minn.; a freight and passenger agency at Sacramento, Cal.; the addition of contracting and soliciting forces at the agencies at New York, Boston, Mass.; Pittsburgh, Pa.; Evansville, Ind., and Portland, Ore.; and the appointment of an assistant industrial and immigration agent to represent the company in the South. The success of these efforts was made possible by the improvement in the operating department, the more prompt handling of freight, and the elimination of congestion. Of course, weather conditions helped this year as compared with the year before, but added facilities and an actual improvement in the handling of trains over the road went even further than mild weather to obtain the results shown.

In 1911 the Illinois Central carried 4,980,000 tons of products of agriculture. This is 18.14 per cent. of the total tonnage, and compares with 4,910,000 tons carried in 1910. The 1910 tonnage of agricultural products was 17.79 per cent. of the total tonnage in that year. The tonnage of miscellaneous commodities not coming under any of the five heads usually used for classification, totaled 2,750,000 tons last year, or 10.02 per cent. of the total tonnage, as against 1,740,000 tons, or 6.32 per cent. of the total tonnage in 1910. The tonnage of products of mines last year amounted to 9,640,000, or 35.06 per cent. of the total tonnage, and in 1910 to 10,120,000 tons, or 36.70 per cent. of the total tonnage. Lumber furnished 4,630,000 tons, or 16.86 per cent. of the total tonnage last year, and 4,980,000 tons, or 18.04 per cent. of the total tonnage the year before.

When a company shows an increase of but 1.24 per cent. in operating expenses in a year when a considerably larger ton and passenger mileage is handled, and when the rate of wages of not only trainmen, enginemen, telegraph operators and other transportation employees was increased, but also the wages of laborers on maintenance of way on the northern and western lines, and the wages of section foremen, bridge and building foremen, and waterworks foremen over the entire system, it is worth while making a study of the details of the expense account. In the case of the Illinois Central, naturally the first items to be examined are those showing cost of maintenance of equipment. Repairs of freight cars in 1911 cost $4,840,000, as against $7,400,000 in 1910; a saving of $2,560,000 in this one item. And apparently nearly as much work was done in 1911 as in 1910; 54,466 freight cars receiving medium repairs in 1911, as against 53,576 in 1910, and 30,435 cars receiving heavy repairs last year, as compared with 36,574 the year before. A new policy has been adopted in regard to the charge for depreciation of equipment, as shown rather strikingly by a charge of $1,160,000 for depreciation of freight train cars in 1911, as against a charge of $269,000 for this account in 1910. This alone would be a fairly good indication that the savings effected in expenses were economies and not a scaling down of maintenance.

In the details of transportation expenses, the higher wages and the increased fuel cost, due to an increase in miners' wages, are evident; but, notwithstanding this and the greater traffic movement, total transportation expenses amounted to $21,330,000 last year, an increase of but $1,600,000 over the year before.

In 1911 the Illinois Central sold $10,940,000 refunding 4 per cent. bonds of 1908-1955. The Indianapolis Southern, which has heretofore been operated separately, but control of which was owned by the Illinois Central, was sold under foreclosure and bought in by the Illinois Central.

The balance sheet of the company is a cross section of the company's affairs that is consistent with the rest of the showing in the annual report. Cash on hand at the end of 1911 amounted to $15,140,000, as compared with $2,220,000 on hand at the end of 1910. Total working liabilities amounted to $7,480,000 at the end of 1911, and to $7,310,000 at the end of 1910. There has been an investment of $19,160,000 in road and equipment for capital expenditures since June 30, 1907.

The following table shows the figures for operation of the Illinois Central in 1911 as compared with 1910:

	1911.	1910.
Average mileage operated	4,563	4,551
Freight revenue	$40,682,197	$38,777,758
Passenger revenue	12,925,004	11,881,014
Total operating revenues	60,977,031	57,884,721
Maintenance of way and structures	7,523,295	7,607,891
Maintenance of equipment	12,317,364	13,502,250
Traffic	1,334,163	1,246,382
Transportation	21,333,835	19,734,911
Total operating expenses	43,856,228	43,320,730
Taxes	2,671,290	2,524,899
Net operating income	14,393,049	12,004,674
Gross corporate income	21,135,487	17,289,283
Net corporate income	11,315,344	7,833,198
Additions and betterments	164,847	.....
Dividends	7,650,720	7,650,720
Surplus	3,499,777	182,478

LEHIGH VALLEY.

THE Lehigh Valley is both a hard coal and a trunk line, but a trunk line without connections of its own west of Buffalo. The increase of $1,520,000 in gross revenue shown in the fiscal year ended June 30, 1911, as compared with the previous fiscal year was due, however, to a greater tonnage of hard coal moved and not, apparently, to any improvements in its trunk line business. Total operating revenue amounted last year to $37,690,000, and, of this total, revenue from coal freight amounted to $17,160,000, an increase of $1,330,000 over 1910; while the revenue from merchandise freight, which amounted to $14,690,000 last year, was slightly less than the year before. Notwithstanding, however, the increase in gross revenue, the company was able to save but $14,280,000 net in 1911, as compared with $14,480,000 net the year before; the operating ratio thus increased from 59.95 per cent. in 1910 to 62.11 per cent. in 1911. On the other hand, through an increase of $283,000 in miscellaneous income (the total for 1911 being $711,000) and through a decrease of $500,000 in interest charges on funded debt, the company was able to show a net corporate income of $7,520,000 available for dividends, or $226,000 more than in 1910; this in addition to charging to income $981,000, or $137,000 more than was charged in the year 1910, for the additions and betterments.

The annual report gives no explanation of the increase in miscellaneous charges, but the decrease in the interest charges on the funded debt was due to the retirement or purchase of $6,000,000 second mortgage 7 per cent. bonds, and the purchase of $572,000 preferred stock of the Morris Canal & Banking Company, which called for dividends at the rate of 10 per cent.

During the year the company sold 403,338 shares of additional stock to stockholders at par, receiving $20,166,900. The company was left, therefore, at the end of 1911 with a large amount of working capital and small working liabilities. Cash on hand at the end of 1911 amounted to $20,620,000, and working liabilities amounted to but $3,720,000, although the dividends, amounting to $3,030,000, declared prior to the close of the fiscal year and paid July 15, were not included as a liability.

The increase in operating expenses referred to above amounted to $1,720,000, and was largely accounted for by an increase of $1,390,000 in transportation expenses, these expenses totaling $11,979,000 last year. The increase in transportation expenses was apparently due both to the increased wages paid employees

and to the greater train movement resulting from the larger tonnage carried. In 1911, $15,300,000, or 56.84 per cent., of total operating expenses, including outside operations, was paid directly to labor. This compares with $13,860,000, or 56.90 per cent., of total operating expenses which was paid to labor in 1910.

It should be noted that although the gross amount paid to labor has considerably increased, apparently labor costs have not increased out of proportion to the rest of operating expenses, and the Lehigh Valley was able to make some reduction in its operating force. There was an average of 21,554 employees during 1911, as against 22,469 employees in 1910. President Thomas says: "The operations for the year under review have felt the effects of the high rates of wages paid employees. To this single fact may be ascribed almost entirely the increase in operating expenses apart from that naturally resulting from the transportation of a greater volume of traffic." In making this statement, presumably Mr. Thomas includes in the higher costs of wages the higher sums spent for superintendence in all departments and the larger sums paid last year by the Lehigh Valley both to general officers and to clerks and attendants. Superintendence under maintenance of way and structures cost $190,000 in 1911, an increase of $24,000 over 1910; under maintenance of equipment, superintendence cost $135,000, an increase of $7,000; under traffic expenses, superintendence cost $172,000, an increase of $22,000; and under transportation, superintendence cost $320,000, an increase of $25,000; while under general expenses, the salaries and expenses of general officers cost $128,000, an increase of $33,000; and salaries and expenses of clerks and attendants cost $320,000, which was an increase of $27,000.

It may be assumed that an increase in the tonnage of coal traffic, without a corresponding increase in the tonnage of any commodity which may furnish a back haul, considerably increases the percentage of empty car mileage to loaded car mileage. In 1911 the Lehigh Valley carried 15,590,000 tons of coal and coke, an increase of 11 per cent. over the tonnage in 1910. Freight and coal locomotive mileage totaled 8,980,000 miles in 1911, an increase of 243,000 miles over 1910. Freight and coal loaded car mileage totaled 215,250,000 miles in 1911, an increase of 6,121,000 miles over 1910, while freight and coal empty car mileage totaled 100,800,000 miles in 1911, an increase of 10,000,000 miles over 1910.

There was a considerable increase during the year in light locomotive mileage, which totaled 1,492,000 miles in 1911 and 1,345,000 miles in 1910; but there is a decrease of 114,000 miles in mileage of switching locomotives, the total for 1911 being 5,371,000 miles. This saving in switching mileage is reflected in economies in operating expenses, which, although slight when compared with total expenses, nevertheless show the result of more efficient operation.

The average train load of revenue freight last year was 544 tons, as compared with 542 tons the year before. The average distance hauled was 171 miles, as against 174 miles. The average revenue per ton per mile was 0.652 cents in 1911, and 0.646 cents in 1910.

Of the total 28,500,000 tons of revenue freight carried by the Lehigh Valley, 12,600,000 tons was anthracite coal; 2,990,000 tons was bituminous coal and coke; 1,600,000 tons was stone, sand and other material; and 1,830,000 tons was cement, brick and lime. The Lehigh Valley does not carry a very large proportion of grain, the total tonnage of grain during the year 1911 being 938,000 tons, a decrease of 47,000 tons from the year before.

Last year the company spent $3,350,000 for additions and betterments, as against $5,200,000 spent in 1910. The more expensive of these additions and betterments last year were: grading, which cost $468,000; bridges, trestles and culverts, which cost $267,000; and for new locomotives and passenger and freight cars.

The following table shows operation figures for 1911 as compared with 1910:

	1911.	1910.
Average mileage operated	1,432	1,440
Coal freight revenue	$17,155,534	$15,821,798
Merchandise freight revenue	14,687,291	14,757,799
Passenger revenue	4,568,030	4,330,172
Total operating revenue	37,687,403	36,167,398
Maintenance of way and structures	3,620,176	3,462,903
Maintenance of equipment	6,003,287	5,995,810
Traffic	1,010,675	918,720
Transportation	11,979,278	10,593,565
Total operating expenses	23,407,318	21,684,147
Taxes	1,145,477	1,106,762
Operating income	12,814,438	13,230,156
Total corporate income	14,490,176	14,636,614
Net corporate income	6,538,909	6,449,647
Additions and betterments	980,549	843,877
Dividends	4,245,759	2,430,718
Surplus	1,312,601	3,175,052

THE BROOKLYN RAPID TRANSIT AND THE INTERBOROUGH RAPID TRANSIT.

HERETOFORE the urban railways of Manhattan have not competed to any great extent with the railways of Brooklyn, although, since the opening of the Interborough Rapid Transit's subway from the lower end of Manhattan through a part of Brooklyn to the Flatbush avenue station of the Long Island Railroad, there has been some competition in Brooklyn between the Interborough Rapid Transit and the Brooklyn Rapid Transit. The Interborough Rapid Transit operates the 26 road miles of subway and the 38 road miles of elevated lines in Manhattan and the Bronx; the Brooklyn Rapid Transit operates the 33 road miles of elevated lines and 240 road miles of surface lines in Brooklyn and Queens. Heretofore the attitude of the Brooklyn company has been to regard any extension of the Interborough into Brooklyn as rather an advantage, since the easier of access Brooklyn was made, the more people would live there, and the greater would be the Brooklyn company's earnings.

During the year, however, the extension of the subway in Brooklyn and the building of a new system of subways in Manhattan have been definitely decided on, and the Brooklyn company has undertaken to extend its operations to include the building and operation of a great system of subways connecting the boroughs of Manhattan, the Bronx, Queens and Brooklyn. The total contract was approved of for the Brooklyn company after the part of it which had been offered to the Interborough Rapid Transit had been rejected by that company. It is rather interesting to make certain comparisons or contrasts between the operations, capitalization, etc., of the two companies before they became active competitors.

It must be carefully borne in mind, however, whenever any comparison is made, that the Brooklyn company operates a system of surface roads as well as elevated, and the Interborough operates no surface roads but a system of subways as well as elevated roads. Operating statistics or any kindred figures to show efficiency cannot be compared as between a subway and a surface railway. However, certain gross figures of these two great city railway companies can properly be contrasted.

The mileages of the two companies has already been given. Gross operating revenues of the Interborough in 1911 amounted to $29,770,000, an increase of 2.69 per cent. over gross of the previous year. Gross operating revenues of the B. R. T. amounted to $21,990,000 last year, an increase of 4.8 per cent. over the previous year. Operating expenses of the Interborough last year amounted to $12,370,000, an increase of $1,360,000 over 1910; and operating expenses of the B. R. T. amounted to $12,170,000 last year, an increase of $429,000 over 1910. After the payment of interest, rentals and sinking funds, the Interborough had a net corporate income of $5,140,000 for 1911, a decrease of $942,000 from the net income of the previous year. The Brooklyn Rapid Transit had a net income of $3,150,000 in 1911, an increase of $537,000 over the previous year. These figures and the good showing made last year by the Brooklyn Rapid Transit as compared with the year before strongly tend to bear out a prophesy made by the B. R. T. management at the time that the Interborough's Brooklyn extension was opened that this extension would temporarily take from the Brooklyn

company possibly $2,000 a day of business, but would within a year or two so develop Brooklyn that the B. R. T. would materially benefit.

In 1911 the Brooklyn Rapid Transit carried 571,880,000 passengers, which included passengers riding on transfers. In the same year the Interborough carried 578,150,000 passengers, which does not include any passengers riding on transfers. If we compare figures of earnings and expenses on a unit basis of per passenger carried, the figures derived are misleading unless it is kept in mind that one company is including a transfer passenger and that the other company has no transfer passengers, except that there are a few that buy 3-cent tickets good at interchange points between the subway and elevated lines.

The B. R. T. has total earnings of 3.89 cents per passenger; the Interborough has total earnings of slightly over 5.1 cents per passenger. Operating expenses on the B. R. T. consume 2.14 cents per passenger, exactly the same as on the Interborough. Taxes on the B. R. T. take 0.26 cents per passenger, and on the Interborough 0.33 cents. Interest and rentals take 0.96 cents per passenger on the B. R. T., and 1.84 cents on the Interborough. The Brooklyn company's interest and rentals make a particularly good showing over a series of years. In 1902 these charges consumed 1.16 cents per passenger carried. Since then they have decreased, until in both 1910 and 1911 the charges were 0.96 cents. In comparing the interest and rental figures as between the two companies, it should be pointed out that the Interborough is including in its figures the payment of $300,000 toward the sinking fund on the 45-year bonds of its own and 1 per cent. of the amount of bonds issued by the city to pay for the building of the subway in addition to the interest on these bonds.

Considerable space is devoted in the annual reports of both companies to a discussion of the approval by the board of estimate of the city plans for building the new subways. Naturally the subject is discussed in quite a different way by the company which accepted the city's terms than by the company which rejected the city's offer and saw approval given to the plan of another company.

The history of the Brooklyn Rapid Transit in recent years has been the story of an uphill fight to overcome the prejudices of the people that it served, engendered by mistakes of former managements, and by the almost unavoidable friction that comes from the handling of such great crowds by employees, who are only human and who are not a very highly paid class of humans at that. The Interborough has had only its own mistakes to rectify and the unavoidable friction arising from the handling of the great crowds under pressure. There is still plenty of friction between employees and passengers on both companies' lines, but on both there seem to be evidences of some improvement. The Interborough has established a separate complaint office with the object of reducing avoidable neglect or misconduct on the part of its employees; it has lengthened the express station platforms so as to accommodate ten-car express trains; it has put fans in a number of its cars so as to lessen the discomfort of travel in the subway in summer; it has provided its guards with white uniforms; it has shown a spirit of trying to please the public, without waiting to be actually forced into it, that has not been very apparent heretofore and is to be commended.

The Brooklyn Rapid Transit last year spent for maintenance and new construction $4,850,000, a large number of small improvements being made. For instance, 10,000 ft. of elevated structure was reinforced, raised platforms were built at Brighton Beach and Ocean Parkway stations, 73 miles of overhead trolley wire was renewed with wire of large capacity, seven snow sweepers and two sprinkling cars were added to the company's equipment, an anti-telescoping device was installed on all elevated passenger cars, and substantial progress was made in the substitution of rolled steel wheels for cast iron wheels on surface cars. At the end of the year, 73 per cent. of the total number of wheels on surface cars were of rolled steel.

We have not attempted in these comments to discuss the merits of the subway proposals of the Brooklyn Rapid Transit, but there is one paragraph in Colonel Williams' report discussing the general situation, which is of special interest to railway men. At the time the plans for the subway were announced, there was considerable criticism of the fact that no provision was made for a line up Seventh avenue, which should provide rapid transit facilities for the new Pennsylvania station in New York. Colonel Williams says: "It should be borne in mind, however, that without any extension on Seventh avenue, the lines already comprised in the new rapid transit system will bring within a short distance of the Pennsylvania station several millions of people of Greater New York who cannot reach it at all by rapid transit except with change of cars and for two fares. The train platforms in the Pennsylvania station will be only 500 ft. farther from the proposed Broadway subway than the train platforms in the new Grand Central (New York Central) station will be from the present subway at Forty-second street."

How serious a problem passenger injury claims are to a street railway company as well as to steam railways is well brought out in this year's report of the B. R. T. At the end of 1910 the company had nearly cleaned up its damage and injury claims. The policy had been to either settle these claims promptly or to bring them to trial at once, and it was hoped that by this policy a material reduction in the amount of these claims could be made. Notwithstanding this policy, damages cost $751,000 last year, an increase of 14.37 per cent. over the year before; and legal expenses in connection with damages were $233,000, an increase of 16.95 per cent. over the year before.

The following table compares certain figures of earnings and operation of the B. R. T. and the Interborough in 1910 and 1911:

	B. R. T.		Interborough.	
	1911.	1910.	1911.	1910.
Passenger earnings, elevated division	$8,377,966	$8,130,820	$15,094,333	$14,723,224
*Passenger earnings, subway or surface division	12,976,397	12,346,325	13,829,604	13,443,805
Total earnings	21,986,543	20,979,515	29,767,352	28,987,648
Operating expenses	12,166,367	11,737,111	12,368,982	11,013,143
Net corporate income	3,148,479	2,611,595	5,140,037	6,082,147
Betterments	88,535	108,560	.....	.....
Dividends and old accounts written off	2,413,585	2,178,414	3,150,000	3,150,000
Surplus	646,359	393,806	1,990,037	2,932,147

*Surface division on the B. R. T. and subway division on the Interborough.

NEW BOOKS.

Railroad Studies. By Charles F. Speare. Published monthly, *New York Evening Mail.* Single copies, 15 cents; subscription price, $2.00 per year.

This series of articles takes up separate roads and summarizes their recent history, describes their traffic possibilities and discusses their earning power. The articles are thoroughly readable and give an excellent picture of the properties which they describe. The author shows a broad knowledge of his subject and a personal acquaintance with many of the properties which he describes. There is a general optimism which pervades the descriptions, but it does not seriously affect their real value. The articles on certain groups of roads or those articles making a comparison of two or more roads are especially good, and the descriptions of the strategic moves of railways to gain an outlet for a new territory are thoroughly well worth reading.

Laws of Porto Rico. Issued by the Executive Council of Porto Rico; 30 pages.

This pamphlet contains the Acts of the Congress of the United States and of the Legislative Assembly of Porto Rico relative to the regulation of public service corporations, the granting of franchises, etc., and the condemnation of private property.

HEAVY MIKADO LOCOMOTIVES FOR THE ILLINOIS CENTRAL.

The fifty mikado locomotives recently built for the Illinois Central by the Baldwin Locomotive Works are of special interest, because of their design and capacity, and also because of the increasing use of this type of engine in heavy freight service. The principal work of the new locomotives will be to handle the coal traffic between Centralia, Ill., and Chicago, and Freeport, Ill., and East St. Louis. They have about 30 per cent. more tractive effort than the consolidation locomotives heretofore used in this service. Superheated steam is used in single expansion cylinders, and the tractive effort developed, with a mean effective pressure equal to 85 per cent. of the boiler pressure, is 51,700 lbs.

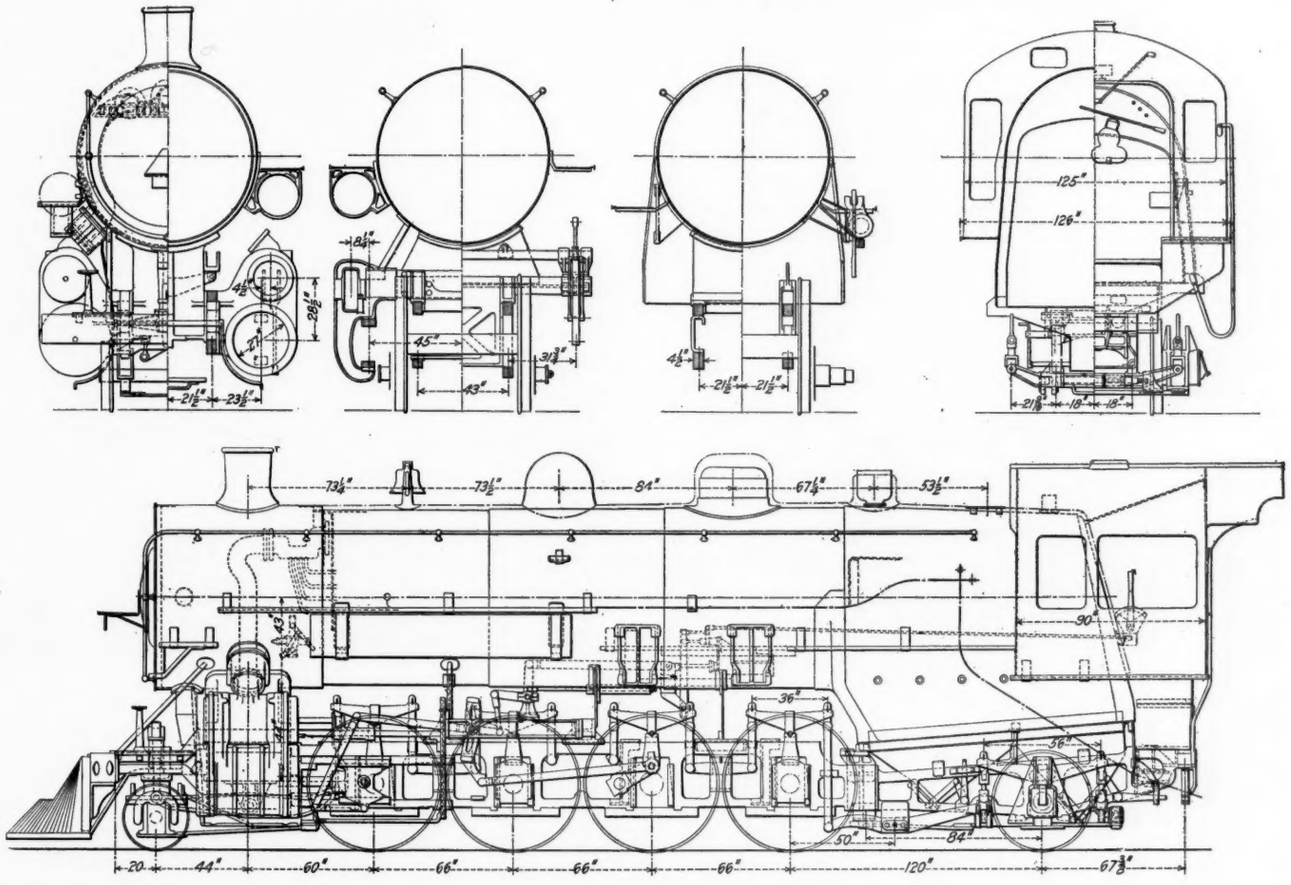
The boiler has a straight top and is built with diamond-shaped longitudinal seams. The firebox crown sheet is stayed by radial staybolts, with two tee-bars in front; 400 flexible bolts are used in the side, throat and back sheets. No brick arch is used, but provision is made for blowing four steam jets into the furnace on each side, approximately on a level with the bottom row of tubes. The steam supply for these jets is drawn from the turret in the cab, and the nozzles are located in 2-in. tubes, placed in the side of the water legs.

A Schmidt superheater of the top header type is used and is composed of 36 elements, located in 5⅜-in tubes. The steam pipes deliver directly to the top of the steam chests. A steel flange is bolted to the exterior of the smoke-box on each side, and to this flange is secured a malleable iron sleeve forming an air-tight joint with the steam pipe boss on the cylinder casting. The steam pipe passes through the flange and sleeve. With this arrangement of piping there is comparatively little obstruction in the smoke-box, and the superheater and tube ends are readily accessible.

The cylinders have bushings ¾ in. thick, which are inserted from the front and line the barrel as far back as the rear counterbore. The steam distribution is controlled by 15-in. piston valves. These are set for a maximum travel of 6½ in., a lead of ¼ in., a steam lap of 1¼ in., and are line-and-line on their exhaust edges. No circulating valves are used on the cylinders, but a vacuum relief valve is tapped into the outer wall of each steam chest above the live steam compartment. The valve motion is of the Walschaert type, and is controlled by the Baldwin power reverse mechanism.

The frames are of cast steel, 4½ in. wide, with double front rails and separate rear sections. The guide yoke is bolted to a steel casting which is placed between the first and second pairs of driving wheels, and has a long bearing on the top frame rails. A second casting located ahead of the main drivers, supports the link bearings. These are placed outside the wheels, and are bolted in front to the guide yoke. In this way, those structural parts which support the motion work also assist in bracing the frames. The front pedestal legs at the main and rear pedestals are braced by deep steel castings, and midway between the main and rear pairs of wheels a broad casting braces the top frame rails and serves as a support for a waist sheet. A heavy cross-tie is also located under the front end of the firebox, where the rear frames are spliced to the main sections. The front and back deck plates are of cast steel, and the front bumper is of the same material.

The equalization system is divided between the second and third pairs of driving wheels. The rear truck is of the Hodges type, and is fitted with a centering spring. The latter is mounted in pockets which are cast in one piece with the back transverse equalizer. The thrust-bar of the spring is mounted between



Heavy Mikado Locomotives; Illinois Central.

lugs bolted to the truck frame. When the engine enters a curve, the thrust-bar is displaced and the spring is thrown into compression, thus tending to restore the alinement.

The main driving axle is made of heat treated steel, while the remaining axles are of open hearth forged steel. Standard rolled steel wheels are used in the engine truck and the tender trucks. The tender frame is composed of 12-in. steel channels, weighing 40 lbs. per ft., and the end sills are of cast steel. The tank has a water bottom and carries 9,000 gals. of water and 15 tons of coal. The principal dimensions and ratios are given in the following table:

General Data.

Type	2-8-2
Service	Freight
Fuel	Soft coal
Tractive effort	51,700 lbs.
Weight in working order	283,850 lbs.
Weight on drivers	218,300 lbs.
Weight of engine and tender in working order	455,000 lbs.
Wheel base, driving	16 ft. 6 in.
Wheel base, total	35 ft. 2 in.
Wheel base, engine and tender	65 ft. 1⅜ in.

Ratios.

Total weight ÷ tractive effort	5.48
Weight on drivers ÷ tractive effort	4.22
Tractive effort × diameter drivers ÷ heating surface	801.
*Tractive effort × diameter drivers ÷ equivalent heating surface	570.
Total heating surface ÷ grate area	58.2
*Total equivalent heating surface ÷ grate area	81.8
Firebox heating surface ÷ total heating surf., per cent.	5.78
*Firebox heating surface ÷ total equivalent heating surface, per cent.	4.11
Weight on drivers ÷ total heating surface	53.5
*Weight on drivers ÷ total equivalent heating surface	38.2
Total weight ÷ total heating surface	69.7
*Total weight ÷ total equivalent heating surface	49.6
Volume both cylinders, cu. ft.	19.86
Total heating surface ÷ vol. cylinders	205.
*Total equivalent heating surface ÷ vol. cylinders	288.
Grate area ÷ vol. cylinders	3.53

Cylinders.

Kind	Simple
Diameter	27 in.
Stroke	30 in.

Valves.

Kind	Bal. Piston
Diameter	15 in.
Travel	6½ in.
Steam lap	1¼ in.
Lead, forward gear	¼ in.

Wheels.

Driving, diameter over tire	63 in.
Driving, thickness of tire	3½ in.
Driving journals, main	11 in. x 12 in.
Driving journals, others	9 in. x 12 in.
Engine truck, diameter	30½ in.
Engine truck journals	6 in. x 10 in.
Trailing truck, diameter	45 in.
Trailing truck journals	8 in. x 14 in.

Boiler.

Style	Straight
Working pressure	175 lbs.
Outside diameter of first ring	82 in.
Firebox, width and length	84 in. x 120⅝ in.
Firebox plates, thickness	⅜ in.
Firebox water space	5 in.
Tubes, number and diameter	262—2 in.
Tubes, number and diameter (superheater)	36—5¾ in.
Tubes, length	20 ft. 6 in.
Heating surface, tubes	3,833 sq. ft.
Heating surface, firebox	235 sq. ft.

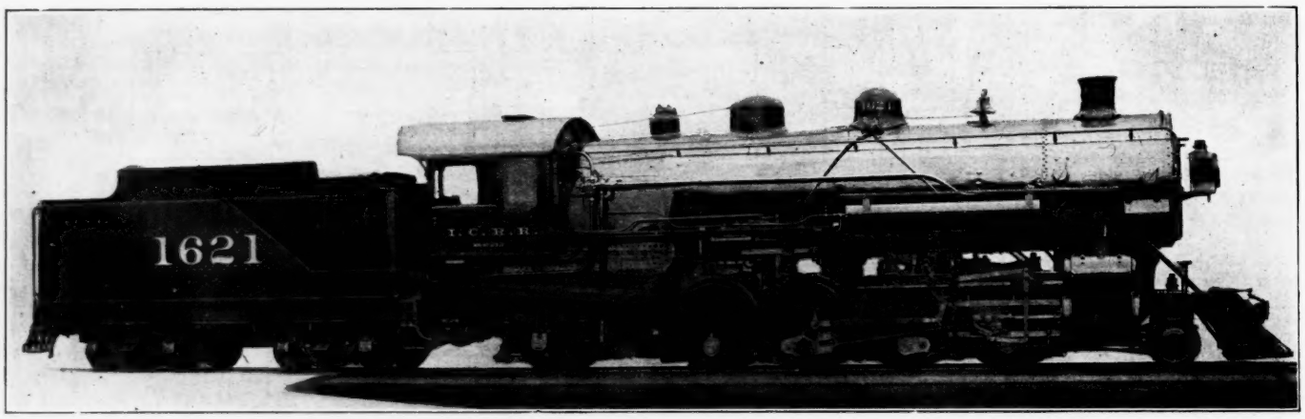
Boiler.

Heating surface, total	4,068 sq. ft.
Heating surface, superheater	1,093 sq. ft.
*Heating surface, total equivalent	5,707.5 sq. ft.
Grate area	70 sq. ft.
Center boiler above rail	120½ in.

Tender.

Tank, style	Water bottom
Wheels, diameter	33 in.
Journals	6 in. x 11 in.
Water capacity	9,000 gals.
Coal capacity	15 tons

*Total equivalent heating surface equals the total heating surface (4,068 sq. ft.) plus 1½ times the superheating surface.



Mikado Locomotive for Heavy Freight Service; Illinois Central.

SCIENTIFIC DEVELOPMENT OF AMERICAN RAILWAYS.

S. M. Felton, president of the Chicago Great Western, prepared a paper on Scientific Management of American Railways, for the Congress of Technology, held at Boston, Mass., on April 10, under the auspices of the Massachusetts Institute of Technology. Mr. Felton was one of the earliest graduates of this school. For incorporation in his paper he collected, at a great deal of trouble and expense, a large number of drawings of typical locomotives and cars used on American railways during the last half century or more. He also compiled some statistics to illustrate the reductions that have been made in the costs of railway operation and in the cost of transportation to the public.

The most remarkable of these statistics relate to the Pennsylvania Railroad. Mr. Felton had several reasons for choosing the Pennsylvania as affording good examples of the results of scientific management extending over a long period of years. One of these was that it has been the policy of the Pennsylvania from the very beginning to entrust its management to men of scientific training. Another, no doubt, was that Mr. Felton is himself a scientifically educated railway officer and received part of his training on the Pennsylvania Railroad. Furthermore, the magnitude of the Pennsylvania's business makes comparisons of its present with its past particularly interesting.

Diagrams are presented herewith showing the tonnage and revenue per ton mile of freight traffic, and the number of passengers transported one mile and the revenue per passenger per mile on the Pennsylvania for the period 1865 to 1910. It will be noted that the average receipts per ton mile in 1910 were only one-sixth of what they were in 1865, and that a heavy reduction, although not so great a one, has taken place in the revenue per passenger per mile. If the average rate had been the same in 1910 as it was in 1865 the freight earnings in 1910 would have been $551,602,000, while the actual freight earnings in that year were $118,203,000, the difference being $433,399,000. This is more than 50 per cent. of the total operating net income, after deduction of taxes, of all the railways in the United States in the year ended June 30, 1910, the operating income less taxes in that year having been $832,227,864. As will be seen from one of the diagrams, Mr. Felton has computed that the saving to the public

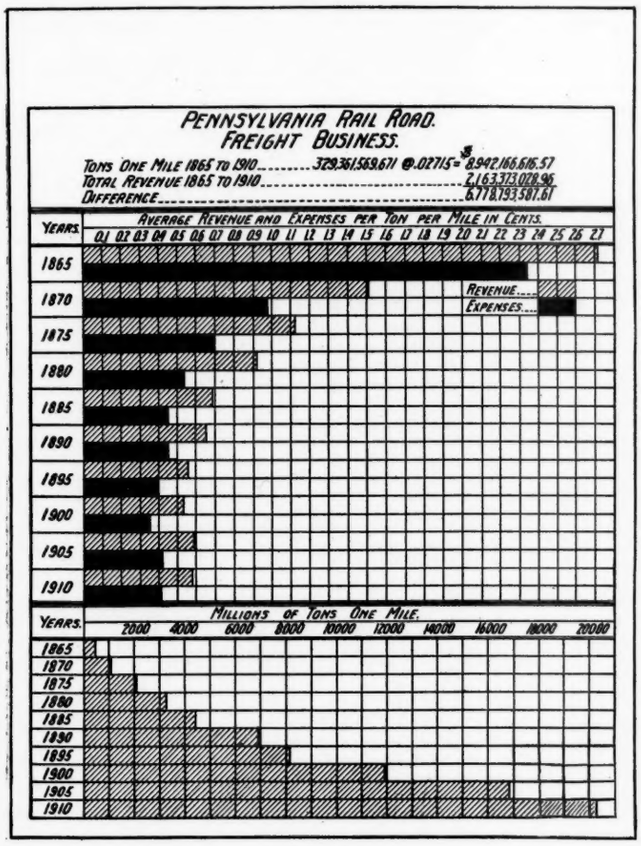


Fig. 1.

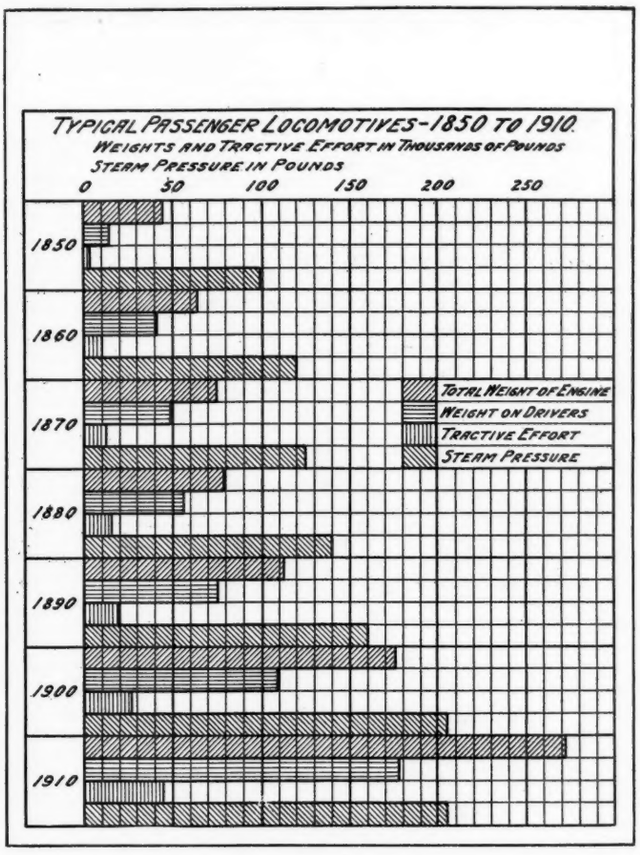


Fig. 3.

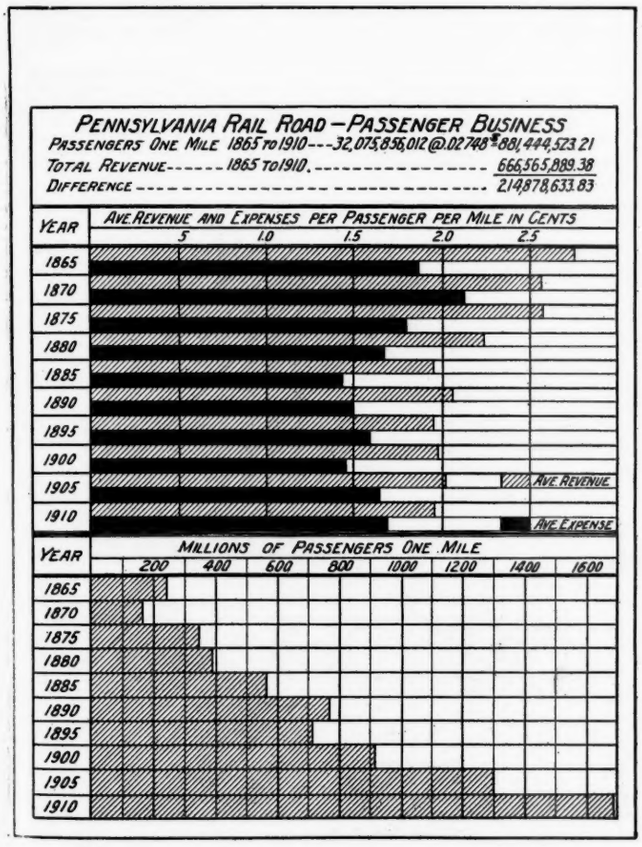


Fig. 2.

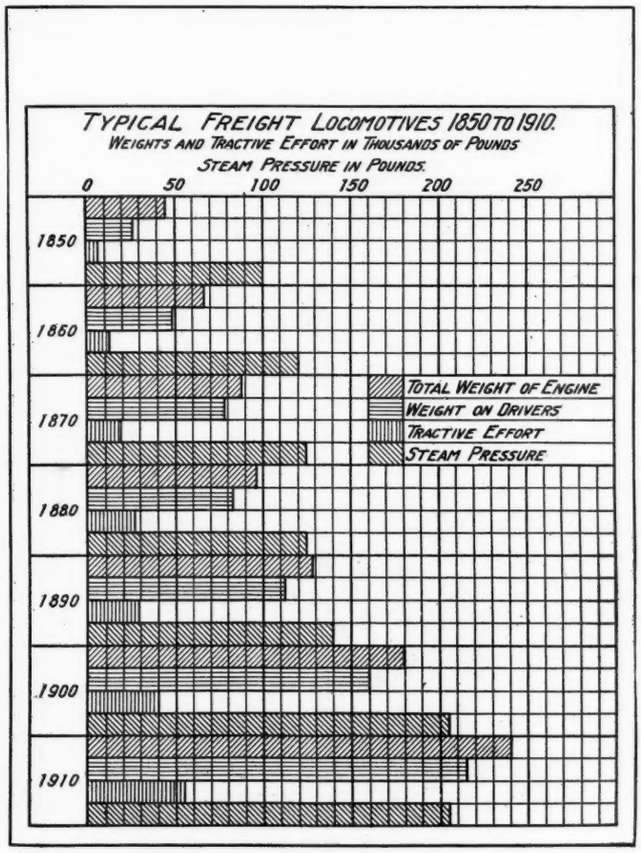
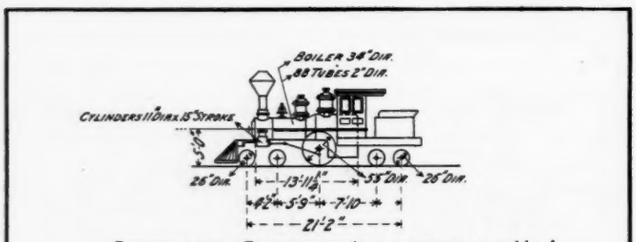
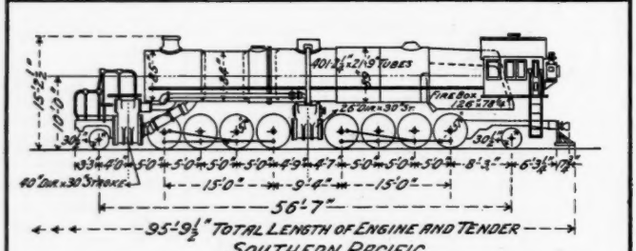


Fig. 4.



SOUTHERN PACIFIC LOCOMOTIVE No. 1.

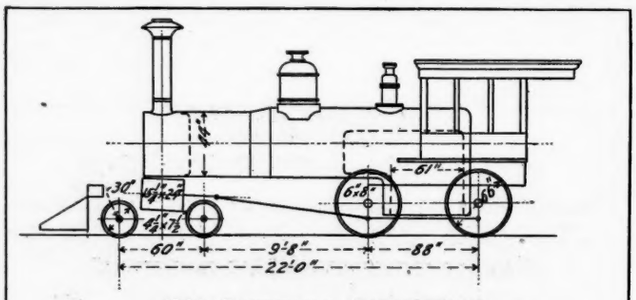
Weight on Drivers (Approx)	18500	Lbs
Weight on Trucks	20500	"
Weight, Total	39000	"
Tractive Effort	4625	"
Boiler Pressure	125	"



SOUTHERN PACIFIC
COMPOUND MALLET CONSOLIDATED LOCOMOTIVE

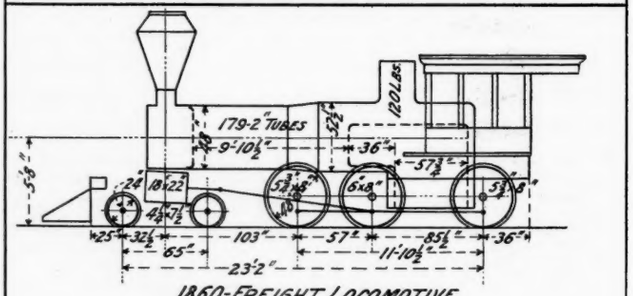
Weight on Drivers (Approx)	394700	Lbs.
Weight on Trucks	42300	"
Weight, Total	437000	"
Tractive Effort	94880	"
Boiler Pressure	200	"

Fig. 5.



1860-PASSENGER LOCOMOTIVE

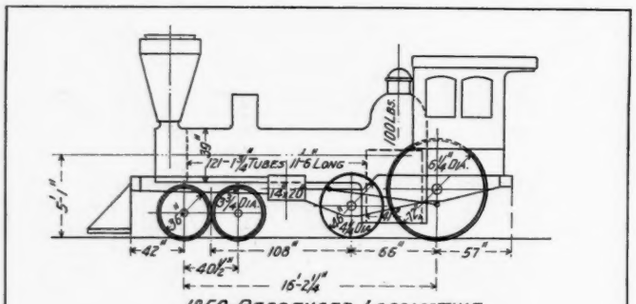
Weight on Drivers (Approx)	40675	Lbs
Weight on Trucks	20125	"
Weight, Total	63800	"
Tractive Effort	10170	"
Boiler Pressure	120	"



1860-FREIGHT LOCOMOTIVE

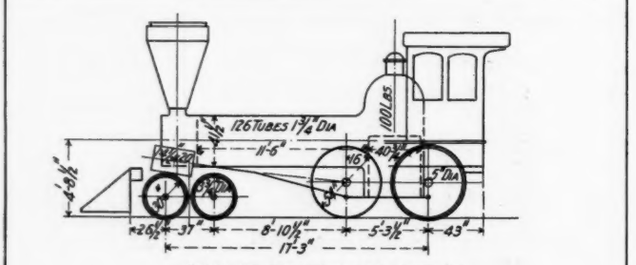
Weight on Drivers (Approx)	49000	Lbs
Weight on Trucks	18000	"
Weight, Total	67000	"
Tractive Effort	12250	"
Boiler Pressure	120	"

Fig. 7.



1850-PASSENGER LOCOMOTIVE

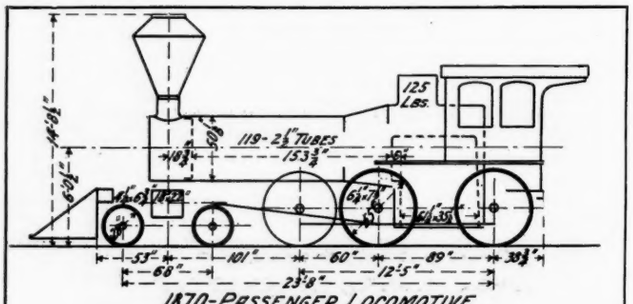
Weight on Drivers (Approx)	15000	Lbs.
Weight on Trucks	30000	"
Weight, Total	45000	"
Tractive Effort	3750	"
Boiler Pressure	100	"



1850-FREIGHT LOCOMOTIVE.

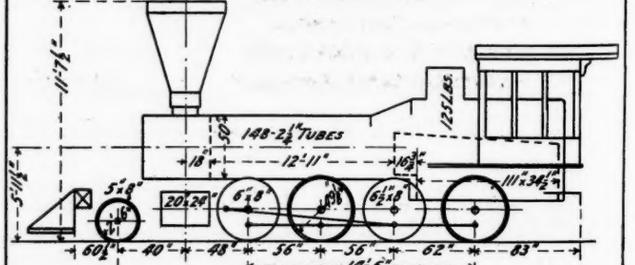
Weight on Drivers (Approx)	26000	Lbs.
Weight on Trucks	19000	"
Weight, Total	45000	"
Tractive Effort	6500	"
Boiler Pressure	100	"

Fig. 6.



1870-PASSENGER LOCOMOTIVE

Weight on Drivers (Approx)	49000	Lbs
Weight on Trucks	26000	"
Weight, Total	75000	"
Tractive Effort	12250	"
Boiler Pressure	125	"



1870-FREIGHT LOCOMOTIVE

Weight on Drivers (Approx)	79000	Lbs.
Weight on Trucks	9000	"
Weight, Total	88000	"
Tractive Effort	19750	"
Boiler Pressure	125	"

Fig. 8.

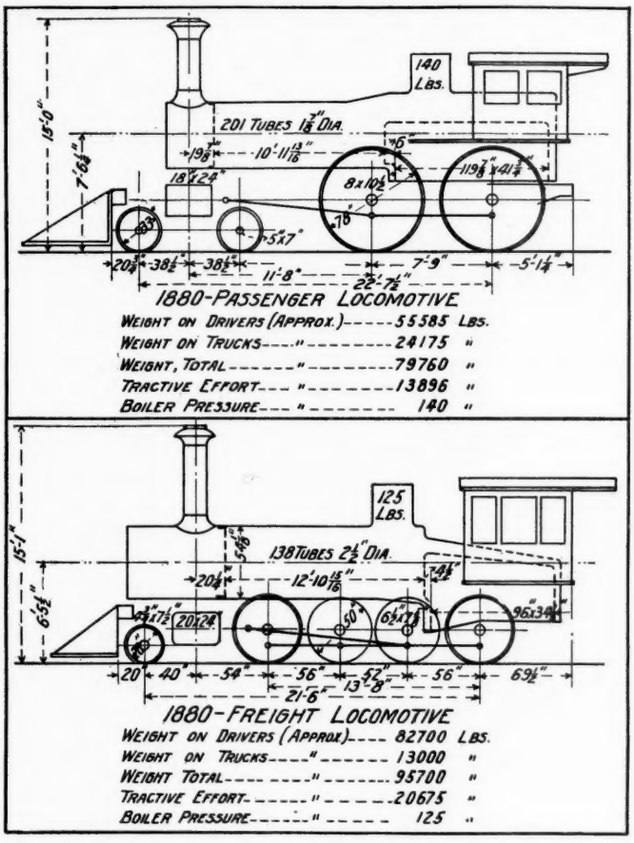


Fig. 9.

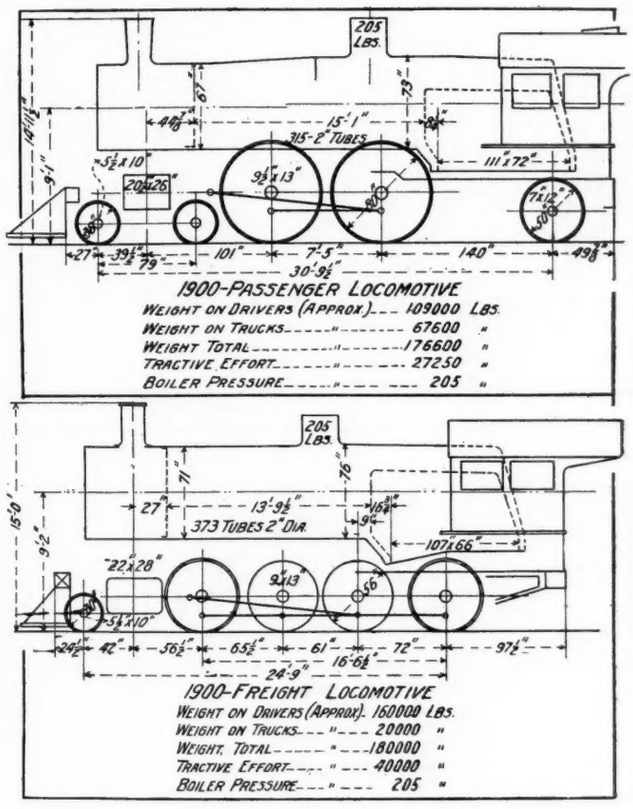


Fig. 11.

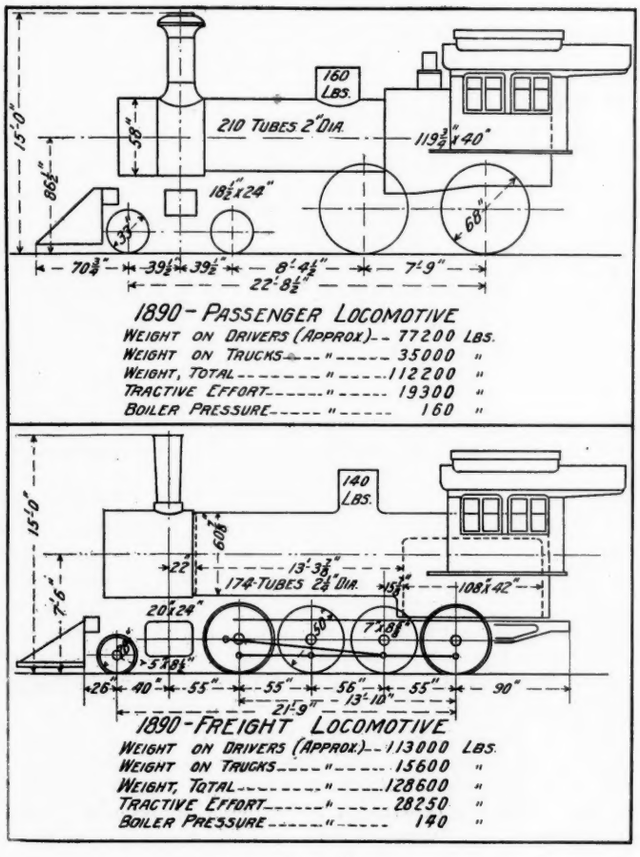


Fig. 10.

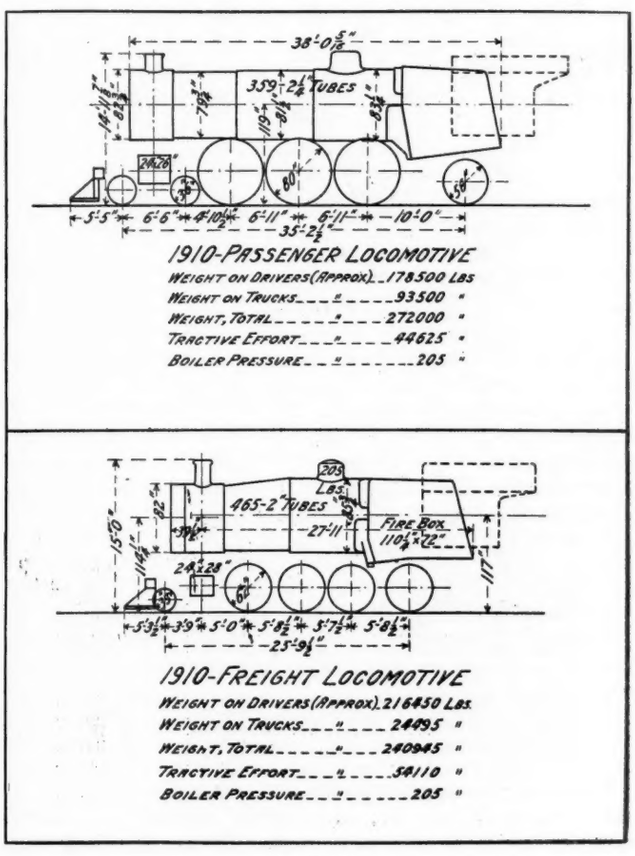


Fig. 12.

through the decrease in freight rates on the Pennsylvania Railroad in the 45 years from 1865 to 1910, was $6,778,793,587.61. This is about ten times the present capitalization of the Pennsylvania Railroad Company, and is 47 per cent. of the total net capitalization of the railways of the United States outstanding in the hands of the public on June 30, 1910 which amounted to $14,338,575,940. Mr. Felton also estimates that the saving to the public during this period through the reduction in the Pennsylvania's average rate per passenger per mile amounted to $214,878,633.83.

Regarding the freight traffic he gives the following figures:

	1865.	1910.
Tons of freight moved one mile...	452,183,478	29,279,992,323
Average gross receipts per ton mile	2.715c.	.583c.
Average expenses per ton mile....	2.347c.	.412c.
Net receipts per ton mile.....	.368c.	.171c.

It will be noted that he estimates that the average cost of moving one ton one mile was reduced from 2.347 cents to .412 cent,

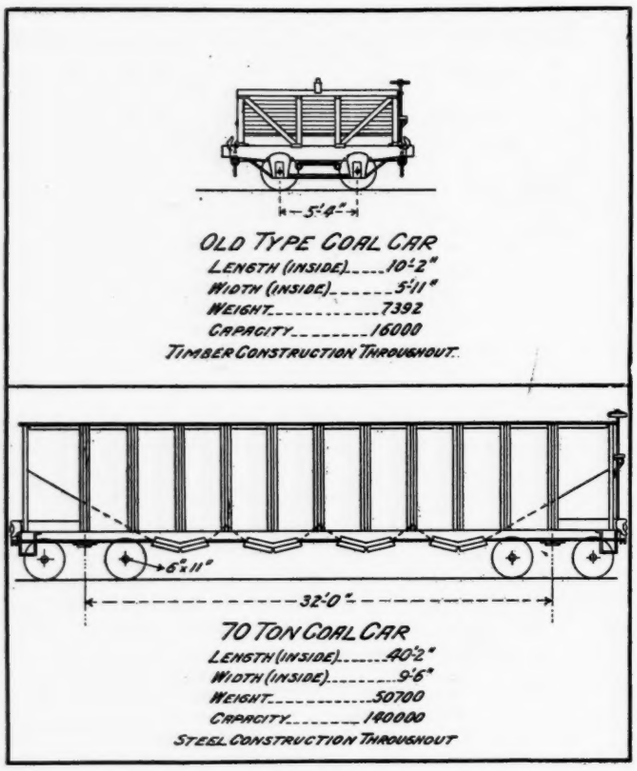


Fig. 13.

or over 82 per cent., and that the net receipts per ton mile were reduced from .368 cent to .171 cent.

Illustrations given herewith, for which the *Railway Age Gazette* is indebted to Mr. Felton, show the development of freight and passenger locomotives on the Pennsylvania by decades from 1850 to 1910. The following tables illustrate the extent of the development in locomotives that has taken place:

Passenger Locomotives.

	1850.	1910.
Weight on drivers (approx.).....	15,000 lbs.	178,500 lbs.
Weight on trucks.....	30,000 lbs.	93,500 lbs.
Weight, total	45,000 lbs.	272,000 lbs.
Tractive effort	3,750 lbs.	44,625 lbs.
Boiler pressure	100 lbs.	205 lbs.

Freight Locomotives.

Weight on drivers (approx.).....	26,000 lbs.	216,450 lbs.
Weight on trucks.....	19,000 lbs.	24,495 lbs.
Weight, total	45,000 lbs.	240,945 lbs.
Tractive effort	6,500 lbs.	54,110 lbs.
Boiler pressure	100 lbs.	205 lbs.

There are also included illustrations of the first locomotive on the Southern Pacific and of a Mallet compound locomotive now in service on the same road. Charts are given herewith showing in graphic form the development of typical passenger and freight locomotives on the Pennsylvania Railroad from 1850 to 1910.

Illustrations are also given showing an old type coal car of the year 1848 and one of the enormous modern 70-ton coal cars which are coming into use on some of the large eastern coal-carrying roads. The former were of timber construction throughout, while the latter are of steel construction throughout. It would be impossible to find in service on any standard gage railway in the United States a freight car comparable to the old coal car of 1848 herewith illustrated, but it would not look so strange on a European railway where the normal capacity of freight cars is from 10 to 15 tons.

LETTERS FROM AN OLD RAILWAY OFFICIAL TO HIS SON, A GENERAL MANAGER.*

XVIII.

Spokane, Wash., August 5, 1911.

My dear Boy: Someone has asked me how far up and how far down the principles of the unit system and the chief of staff idea can be applied. It is too bad the answer is so easy. Otherwise we might inaugurate a guessing contest and offer prizes. The unit system is applicable to every phase of modern organization. When its principles are better understood, you will see develop in the great financial centers some such important title as vice-chairman, in order that rank and authority may be conferred superior to that of the presidents of the constituent properties. Both the chairman and the president need a senior vice-chairman and a senior vice-president, respectively, to act as chief of staff. The New York Central once had a senior vice-president, W. C. Brown, and the St. Louis & San Francisco created the same position for Carl Gray. When these two able men became presidents, their former positions were discontinued. Puzzle: Find the reason. Answers to be sent to the Puzzle Editor, Louis D. Brandeis, Boston, Mass.

A prominent railway executive, who is also a distinguished bridge engineer, said to me, "You must be patient until railway people can measure this big idea in their own little half bushels. I did not see it clearly until I thought it through in terms with which I am familiar. I reverted to my graphic statics and measured organization as a bridge truss. This showed the chief clerk as a short ordinate between the longest, the head of the unit, and the next longest, the official second in rank. We would never design a bridge that way, for the short ordinate in between would break under the strain. You interpose the chief of staff and diminish your strains logically to suit the decreased resisting power. Why don't you show the old telegraph men and the electric people the same idea in terms of things with which they are most familiar? They should see that you can not step down your potential through an undersized transformer."

Railway administration is usually said to be divided into four real departments, namely: the executive, including legal and financial, the traffic, the operating, including maintenance and construction, and the accounting. Most railways place each of these departments in charge of a vice-president. I think that this is usually a mistake. Experience has demonstrated the practicability of the same man being a division master mechanic, for example, and at the same time performing some of the broader duties of an assistant superintendent. Likewise an assistant general manager can act as the head of the mechanical bureau in the general office. When we reach so high as to go beyond the heads of real departments we find our old friend, volume of business, and his bastard brother, unbalanced administration, to demand more balance wheels. The unit has become of too large a size for a single governor. If you don't believe this, watch somebody try to transfer a bureau, freight claims for example, from the department under one vice-president to that of another.

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When I incorporate and organize that ideal railway it will have a president, a senior vice-president and as many other vice-presidents as may be necessary. The vice-presidents will be real assistant presidents, not heads of departments. Each will be an expert graduated from some particular department. Such graduation will depend more upon the man being big enough for a vice-president and possible president than upon the department itself. Since volume of business warrants separation of the financial and the corporate from the legal, and of passenger from freight traffic, I shall have seven departments, under seven general officers, namely, the general inspector (who will also be comptroller), the secretary, the general treasurer, the general manager, the freight traffic manager, the passenger traffic manager, and the general counsel. Each of the seven departments will have its own office file. All of the vice-presidents will have one consolidated office file in common with the president.

Trusting that these few lines will restrain you for a brief period, which is Boston & Albany for hold you for a while, let us consider the application of the unit system to a humbler sphere, that of roadmaster or track supervisor, who is the head of a highly important sub-unit of maintenance organization. The roadmaster's clerk is usually paid less than a section foreman. As a result such clerk is either a callow youth looking for speedy transfer or an old man married to the job. In the latter case, after one change in roadmasters the clerk probably dominates the office. He puts so much fear of paper work in the minds of the section foreman that few aspire to be roadmasters. Instead of a clerk, why not have an assistant roadmaster, a real understudy, promoted from section foreman at a slight increase in pay and allowances? Get the working atmosphere of the section into the roadmaster's office. Perhaps some of the section foremen are not relatively as stupid as some superiors who take snap judgment on possible qualifications. Some people deny the necessity for a roadmaster's office. Is it not rather difficult to hold a man responsible without giving him access to first hand records of performance? An assistant superintendent or an assistant general manager can and should come to his own headquarters where there are clerks to furnish him necessary information. A roadmaster away from division headquarters cannot gain such contact without deserting the subdivision for which he is responsible night and day. He cannot well take the section foreman from work to compile statistics.

When the word superintendent is eliminated from all higher titles so that it means the head, and a real head, of an operating division, there will be a bigger return for that item of operating expenses known as "superintendence." If the notion still lingers that operation is merely train movement, and that it is enough for a superintendent to be a high class chief despatcher, the idea of real management can be driven in by calling the head of a division a "manager." In such case, the title general manager would have a logical meaning. The title district manager would fit the case where subdivision into such territorial units became unavoidable.

When the telegraph, the telephone, and the phonograph were invented the Greek language was consulted and new words were scientifically coined to express a new necessity of linguistic expression. The automobile and the aeroplane are founding whole families of new words. As society and industry become more highly organized it may be necessary to coin new words to convey the full idea of the rank and duties of the human elements in a large organization. Critics of the unit system deplore the uniformity of titles as tending to merge individual identity. This is not the fault of the system but of the poverty of the English language which lacks varying terminations of root words to express different shades of meaning. If necessary to meet this view helps can be sought from such highly inflected languages as Greek and Esperanto, and new words coined. Thus the same word with a slightly different ending would mean, "assistant superintendent in charge of maintenance of way and structures as classified by the Interstate Commerce Commission," or, "assistant superintendent in charge of maintenance of equipment, including an allowance for depreciation at the legal and constitutional ratio of sixteen to one, expiating the crime of 1873 and glorifying the Hepburn Act of 1906."

Many practical things in this world escape attention because they are so close as to be inside the focal distance. The persons most concerned are often too close to a proposition to observe what should be distinctly obvious. I uncover my headlight to the fellow down East who recently showed us all that green flags can be replaced by the night markers. For the over-specialization of perishable day indicators he substituted the all-round day and night marker. The supply people should not kick at the decreased demand for their product. They should be thankful, rather, that railway officials did not wake up sooner to changed conditions. The new practice is worth the price of admission if it only serves to do away with the delay and inconvenience of loading and unloading the time-honored and cumbrous train box which still roams wild in some region covered by the Spokane rate decision.

Among the other simplifications which time will bring is a logical method of designating extra trains. Today we tell a man than an engine number means little, because the train indicator says that it is train so-and-so. The numbers on the engine and on the train indicator are different and have no relation. Tomorrow the engine runs extra and the two numbers must be identical. When we adopt the train indicator, should we not banish numbers from the outside of our engines and tenders? Should not the number be inside the cab to be consulted for reports and statistics, including the train sheet? This would mean that extras would be numbered consecutively in a series higher than the numbers on the regular trains. Extras, like regular trains, would lose their running rights in twelve hours. In this connection, did you ever figure that, except possibly in the case of extras, the distinctions "A. M." and "P. M." are superfluous on train orders? Should P. M. come before the order is fulfilled, the A. M. train is dead.

The proposed change would force regular trains to be numbered in lower series, regardless of divisions and branch lines. This would make for safety. The more figures in a number, the greater the possibilities of error in reading a train order. A man is much more likely to confuse 2347 with 2345 than 47 with 45. If the motive power bureau must recognize the high numbered union for classification purposes, let us avoid having the blooming series federate with the train despatcher's order book.

The magnificent distances of this western country are reflected in increased difficulties in railway operation. Perhaps no branch of the railway service is more affected thereby than the dining car service. American travelers, as the colored soldier said about the Cubans, are the "eatin'est lot of people." The long haul for cars and supplies renders supervision more difficult and deficits correspondingly greater. The dining car man on most, if not all, western roads is attached to a losing game. When poverty comes in at the door, love flies out at the window. The dining car superintendent is kept busy retaining the affections of the management in the face of red figures.

A dining car is about the most complex proposition in its operation that we have on the railway. It will be the hardest to bring under the supervision of the division superintendent and his assistants. The difficulties of so doing are many, but are not insurmountable. The dining car, because it moves on wheels, is an incident to the manufacture and sale of transportation. It is not, as a few dining car people suppose, merely a traveling hotel to which the railway is an incident. Originally the dining cars were under the passenger traffic department. Later it was realized that they are logically a part of operation. So they have been placed under the general manager and his subordinate, the superintendent of dining cars. We say nonchalantly that the superintendent and the train conductor can instruct the so-called conductor of the dining car. Let a passenger conductor report a dining car conductor. The former's superintendent will probably find himself helpless to defend his man against the momentum of a correspondence bureau located in the general offices. As

a result, the superintendent and the passenger conductor soon lose interest. They are not looking for trouble and possible censure. The outcome is long-range supervision of a centralized activity. The man in charge of the dining car should be called steward, because he cannot conduct a car even to a side track. He should be under the control of the train conductor, whom the superintendent can hold responsible for the entire train performing proper public service. A good, honest passenger conductor can secure and retain more business for the company than two traveling passenger agents. The conductor cannot do this if the dining car man is unwilling to send promptly a pot of coffee to the shabby little sick woman in the chair car whose daughters are going to buy tourist tickets next year. In the days of simpler organization the good old passenger conductor would unload on the prairie a shorter-sighted sleeping car or dining car man and let the latter walk home. Because this cannot be done today is one of the reasons for the lack of initiative on the part of the train conductor. The lack of courtesy sometimes shown by employees is not infrequently the fault of heads of would-be departments whose tenacity for departmental lines leaves subordinates with an unbalanced notion of the necessity for real courtesy and consideration. Bowing and scraping do not alone constitute politeness.

One of the best dining car superintendents in the country is Tom Clifford of the Erie, a graduated division superintendent and passenger conductor. Because they are general officers, the dining car superintendents of the future should be assistant general managers, and should come up from the grade of division superintendent, in order to acquire a more comprehensive knowledge of operation. Just how to work out all the details is, I confess, perhaps the hardest operating problem that I have yet tackled. Pullman employees have a home terminal and a home district to whose superintendent certain reports are made and complaints referred. This works well, although Pullman cars may run over several of their superintendents' districts. The fact that dining cars run over more than one division is not of itself a sufficient reason for the employees being under the immediate direction of a general officer. Volume of business, density of traffic, shortness of runs, and other causes may warrant varying applications of the underlying principle. Above all, we should avoid those hard and fast rules which even the Medes and Persians never attempted to make applicable to dining cars.

Affectionately, your own

D. A. D.

FOREIGN RAILWAY NOTES.

Plans have been made for a deviation of the line of the Dominican Central Railway, Dominican Republic, from a point at the base of San Marco Hill, near Puerto Plata, to Bajabonico. This will obviate the necessity of using the rack system which is now in operation on a portion of that line.

The total mileage of railways in operation in Argentina at the close of the year 1910 was 18,166 miles. The mileage of railways opened to traffic during the year was 2,140 miles, which is the greatest new mileage recorded in any one year in the history of the country, and is more than twice that for the year 1909. While the greater part of this new mileage consisted of extensions and branches of existing roads, a considerable portion pertained to entirely new lines, a number of which are being constructed through the national territories in the north and south. The new road from Rosario, the second city of the republic, to Puerto Belgrano on the Atlantic coast east of Bahia Blanca, a distance of 493 miles, was opened to traffic at the close of the year. It traverses a fertile agricultural region in the provinces of Santa Fe and Buenos Aires, and connects with all of the large roads in that region. The lines completed in the Chaco from Formosa to Embarcacion, and from Barranqueras or Resistencia, opposite Corrientes, to Metan in the province of Salta, will open up for development a very rich territory.

TONNAGE RATING OF LOCOMOTIVES ON THE BURLINGTON.*

BY M. H. WICKHORST.

In establishing a tonnage rate for an engine it is the aim to load the engine to near its maximum pulling capacity and yet not load it so heavily that it will stall on any of the hills, or be on the road an excessive length of time.

The work of engine rating consists of: (1) Determining the maximum working tractive force the engine can maintain under average conditions over the ruling grade; and (2) balancing this with an equal amount of total train resistance, on the ruling grade. There are tractive force formulæ and curves of train resistance from actual tests which are worked up into tables convenient for use in this work.

The tonnage rater, in rating a division, must first get an

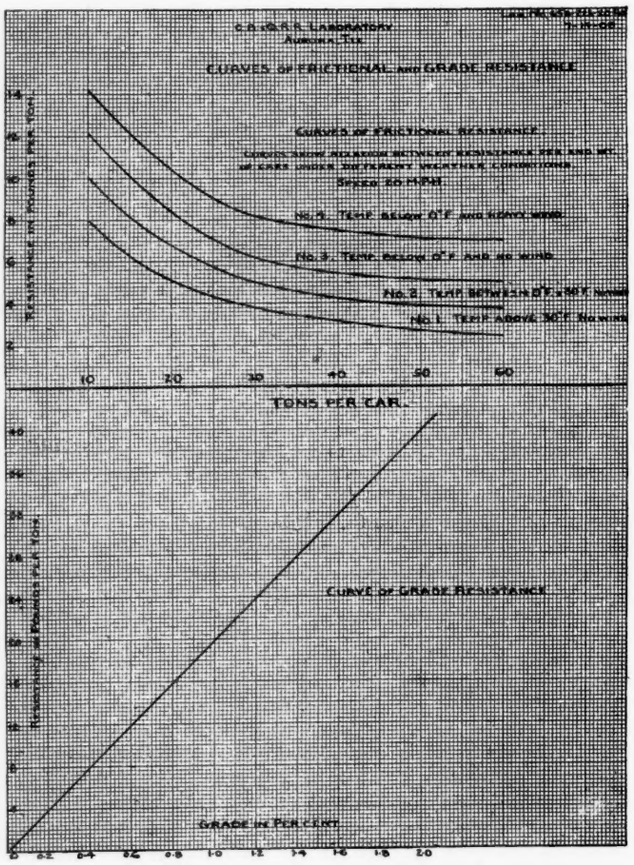


Fig. 1—Curves of Train Resistance, Frictional and Grade.

alinement and grade profile of the division and make a careful study of the grades, curves, etc., for the purpose of determining the ruling grade and estimating about what percentage of the maximum tractive force an engine can consistently maintain and get over the road in good time and without stalling. There is also the question of momentum grade as affecting the ruling grade.

He should also, if consistent with operating conditions, divide the main runs of the division into rating divisions whenever there is a sufficient change in ruling grade to warrant two different rates. For instance, one run on the Galesburg Division of the Chicago, Burlington & Quincy is from Quincy to Galesburg; from Quincy to Bushnell is 70 miles, with a ruling grade of 0.7 per cent.; from Bushnell to Galesburg is 30 miles, with a ruling grade of 0.3 per cent. As Bushnell is a point where there is a

*From Bulletin No. 138 of the American Railway Engineering Association, published August, 1911.

great deal of freight to fill up with, there should be two rates for the Quincy-to-Galesburg run. If there were no important points where freight originated between Quincy and Galesburg, a straight through rate from Quincy to Galesburg would probably be made.

Having settled on these, the rater will consult the equated tonnage tables for the grade in question, and using the predetermined tractive force as the train resistance, he will get a trial rate.

The next step is to ride engines hauling this trial rate and see how the estimate works out in practice. There are many local influencing conditions which cannot be seen on the profile chart, such as differences in roadbed, speed limits, some grades being protected from winds by trees or cuts, overworking of fires, etc.

its average speed *in motion* is twenty miles an hour, the average speed between the terminals will not fall under ten miles per hour.

Outside the ability of the engine to handle her train, density of traffic and efficiency of despatching are factors to be considered. The question of speed is an important one, and the engine rater should keep accurate record of stops and time on the road on his trial trips, and rate accordingly.

The length of the division is another influencing factor. On a short division, of say, 60 miles in length, it is economy, traffic permitting, to load the engines a little more heavily; whereas, on a 160-mile division the rate should be lowered on account of excessive time on the road, the possibility of heavy or clinkered fires, etc.

SAMPLE DATA SHEET AND METHOD OF CALCULATION.

EQUATED TONNAGE RATES

GRADE 0·5%. RESISTANCE 20,000 #

RATE A. TEMP. ABOVE 30°F. AND NOT MUCH WIND. RATE B. TEMP. BETWEEN 0°F AND 30°, OR STRONG HEAD OR SIDE WIND, OR FROSTY RAIL. RATE C. TEMP. BETWEEN 0° AND 30°F AND STRONG HEAD OR SIDE WIND, OR TEMP. BELOW 0° AND CALM. RATE D TEMP. BELOW 0° WITH HEAD OR SIDE WIND.

TONS PER CAR	FRICTION AND GRADE RESISTANCE PER TON.	RATE A		RATE B		RATE C		RATE D		CARS	RATES.			
		TONS	CARS	TONS	CARS	TONS	CARS	TONS	CARS		A	B	C	D
10	17·9	1117	111·7	1042	90	930	91·5			100	1160			
11	17·5	1143	103·8	1060	85	960	83			95	1180			
12	17·1	1170	97·4	1080	81	980	78·8			90	1200	1040	935	
14	16·5	1212	86·6	1100	76	995	74·6			85	1220	1060	950	855
16	15·9	1257	78·6	1120	72	1010	70·6			80	1245	1080	970	870
18	15·5	1290	71·7	1143	67	1033	66·4			75	1270	1100	990	890
20	15·1	1324	66·2	1170	63	1053	62·2			70	1300	1125	1010	910
25	14·4	1389	55·6	1200	58	1080	58·1			65	1330	1150	1035	930
30	13·9	1439	48·0	1222	54	1105	53·9			60	1360	1180	1060	955
40	13·2	1514	37·9	1255	49	1130	49·8			55	1395	1210	1090	980
50	12·8	1565	31·3	1285	45	1160	45·6			50	1430	1250	1125	1010
60	12·5	1600	26·7	1320	40	1185	41·5			45	1465	1285	1160	1045
				1350	36	1215	37·4			40	1500	1320	1195	1075
				1380	31	1245	33·2			35	1535	1360	1230	1105
				1415	27	1275	29			30	1575	1400	1270	1140
				1455	22	1305	24·5			25	1615	1440	1310	1180
						1340	20·7			20		1490	1350	1215
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15

T_A = RESISTANCE PER TON FOR RATE "A" CONDITIONS.

T_B = RESISTANCE PER TON FOR RATE "B" CONDITIONS.

T_C = RESISTANCE PER TON FOR RATE "C" CONDITIONS.

T_D = RESISTANCE PER TON FOR RATE D CONDITIONS.

RATIO OF TONS AND CARS WITH "A" CONDITIONS TAKEN AS 100.

GRADE PERCENT	$\frac{T_A}{T_B}$	$\frac{T_A}{T_C}$	$\frac{T_A}{T_D}$ *	GRADE PERCENT	$\frac{T_A}{T_B}$	$\frac{T_A}{T_C}$	$\frac{T_A}{T_D}$	GRADE PERCENT	$\frac{T_A}{T_B}$	$\frac{T_A}{T_C}$	$\frac{T_A}{T_D}$
·0	·76	·61		·8	·93	·86	·80	1·5	·96	·91	·87
·1	·82	·68		·9	·93	·87	·82	1·6	·96	·92	·88
·2	·84	·74		1·0	·94	·88	·83	1·7	·96	·92	·88
·3	·86	·77		1·1	·94	·89	·84	1·8	·96	·92	·89
·4	·89	·81		1·2	·95	·90	·85	1·9	·96	·93	·90
·5	·90	·83		1·25	·95	·90	·85	2·0	·97	·93	·90
·6	·91	·84	·76	1·3	·95	·90	·86				
·7	·92	·85	·78	1·4	·95	·91	·87				

Fig. 2—Method of Calculating Equated Train Resistance in Tons of Trains.

men, etc. Very often sidings or the approach to them will be on a heavy grade, so that if an engine had to stop to head in at one of them, it would be unable to start the train again. The approach to crossovers, home semaphores, or any place where trains have to be stopped under ordinary operating conditions, are similar instances that have to be considered in making the rate. If, however, to consider such a point would lower the rate very materially and if the point in question were such that wise despatching would eliminate most of the stops at the place, it should be ignored in making the rate. These will show up on the trial trips, and the rater can, in a few trips, check up his rates and readjust, if necessary, for the final rating.

If a train averages less than ten miles an hour between terminals (except on runs of less than 100 miles), the engine and train crew are on the road an excessive length of time. In practice we find that ordinarily if an engine is loaded so that

Following is the method of arriving at the equated tonnage rates:

TRACTIVE FORCE.

The method of figuring the maximum tractive force that an engine may develop at the tender drawbar on level track and of correcting this value for grades and for special conditions affecting train resistance to secure the net working tractive force, was explained in a former article by Mr. Wickhorst published in the *Railroad Gazette* of March 27, 1903, page 234.

TRAIN RESISTANCE.

Train resistance consists of three primary resistances, as follows:

(1) Acceleration resistance.
(2) Grade resistance.
(3) Friction.

The composition of this resistance is shown below:

- Resistance Train
  - Acceleration Resistance, depends on tonnage only. — 20 lbs. per ton for 1 per cent. grade, or about .4 per lb. for each foot per mile of grade.
  - Grade Resistance, depends on tonnage only. — 20 lbs. per ton for 1 per cent. grade, or about .4 per lb. for each foot per mile of grade.
  - Friction — Varies from 2½ to 12 lbs. per ton.
    - Journal. Depends on design and lubrication.
    - Rolling. Depends on solidity of roadbed.
    - Flange.
    - Curve
      - Sliding of one tread, in each pair, on the rail.
      - Flange Friction.
    - Side bearings and center plates cause flange friction.
    - Wind
      - Wind against body of car.
      - Flange Friction.

Note.—Flange friction consists of that due to curves, side bearings and center plates, winds, etc.

(1) *Acceleration Resistance.*

In rating slow freight trains acceleration resistance need very seldom be considered, except on momentum grades. Here it comes as negative resistance, and will be considered later under the head of momentum grades.

(2) *Grade Resistance.*

This, generally, is the largest component of the freight train resistance, and is dependent only on the tonnage on any given grade. The grade resistance per ton may be figured by the following formula:

$$r_g = 20\,G$$

Where r_g = grade resistance in lbs. per ton
and G = grade in per cent.

(3) *Friction.*

As stated above, the frictional resistance varies considerably. The friction expressed in pounds per ton drawbar pull increases as the speed increases, decreases as the gross weight of a car and its freight increases, and increases, in a general way, as the temperature of the air decreases. It varies for freight cars at freight speeds between limits of about 2 lbs. per ton and 12 or more lbs. per ton. Fig. 1 shows some curves of friction resistance of freight cars at speeds of 20 miles per hour. These curves show the relation between the gross weight per car in tons plotted horizontally, and the resistance per ton in pounds plotted vertically for four different weather conditions, as follows:

(1) Temperature above 30 deg. Fahrenheit, and not much wind.

(2) Temperature between zero and 30 deg. Fahrenheit, *or* strong head or side wind, *or* frosty rail.

(3) Temperature between zero and 30 deg. Fahrenheit *and* strong head or side wind, *or* temperature below zero and not much wind.

(4) Temperature below zero with strong head or side wind.

The curve showing resistance of freight cars in summer weather (above 30 deg. Fahrenheit) is the result of dynamometer tests by the Pennsylvania Railroad, and various results obtained by the Burlington agree well with this curve.

The curve showing friction of freight cars for the third weather condition is one obtained by the Burlington from dynamometer tests during the winter of 1900-1901. This curve was formerly used for the resistance of cars in 10 deg. Fahrenheit to 30 deg. Fahrenheit weather, but we found that there was too wide a gap between the winter rates derived from this curve and the summer rate; i. e., for calm winter days an engine could easily take considerably more than the old winter weather rate, especially on the low-grade division. Accordingly, between these two curves was placed another curve for calm winter weather, *or* windy summer weather, and road tests indicated that rates derived from this curve were about right.

The curve for very severe winter weather was obtained by arbitrarily adding 2 lbs. per ton to the No. 3 curve. This seems to give the right result for grades 0.6 per cent. or over; for grades of 0.5 per cent. of lower, 10 per cent. is deducted from the No. 3 or "C" rate to get the "D" rate. This diagram also gives a curve of grade resistance based on the above formula.

Knowing the grade, the gross weight of a car, and the general weather condition, the total resistance per ton is found by adding together the grade and friction resistances per ton as found from these curves.

EQUATED TONNAGE for .5% GRADE

Resistances 25,000 - 27,500

No. of Cars	25,000 A	25,000 B	25,000 C	25,000 D	26,500 A	26,500 B	26,500 C	26,500 D	26,500 A	26,500 B	26,500 C	26,500 D
100	1580	1340	1210	1090	1690	1370	1240	1115	1635	1410	1275	1150
95	1580	1370	1230	1110	1620	1400	1260	1135	1660	1440	1295	1165
90	1610	1400	1250	1125	1650	1430	1285	1155	1690	1470	1320	1190
85	1640	1430	1275	1145	1680	1460	1310	1160	1720	1500	1345	1210
80	1670	1460	1300	1170	1710	1490	1336	1100	1755	1530	1390	1230
75	1705	1490	1330	1195	1745	1520	1365	1230	1790	1560	1400	1260
70	1740	1520	1360	1225	1780	1550	1400	1260	1825	1590	1435	1290
65	1775	1560	1395	1255	1815	1590	1435	1290	1860	1630	1465	1320
60	1810	1600	1430	1285	1850	1620	1470	1320	1895	1660	1500	1350
55	1845	1630	1465	1320	1885	1650	1505	1350	1930	1690	1535	1290
50	1880	1660	1500	1350	1920	1690	1540	1385	1965	1730	1570	1410
45	1915	1700	1535	1380	1960	1730	1575	1415	2005	1770	1605	1440
40	1950	1740	1570	1410	2000	1770	1610	1450	2045	1810	1640	1475
35	1990	1780	1605	1445	2040	1810	1645	1480	2085	1850	1675	1508
30	2030	1820	1640	1475			1680	1510			1715	1545
25			1675	1510			1720	1550				
20												
15												
10												
5												

No. of Cars	26,500 A	26,500 B	26,500 C	26,500 D	27,000 A	27,000 B	27,000 C	27,000 D	27,500 A	27,500 B	27,500 C	27,500 D
100	1680	1455	1320	1190	1740	1520	1470	1235	1760	1540	1305	1245
95	1705	1485	1340	1205	1765	1540	1390	1250	1795	1565	1405	1265
90	1735	1520	1365	1230	1790	1565	1415	1275	1825	1590	1430	1285
85	1765	1550	1390	1250	1815	1595	1440	1295	1855	1620	1460	1310
80	1800	1575	1415	1275	1845	1620	1465	1320	1885	1650	1488	1335
75	1830	1605	1445	1300	1875	1650	1490	1340	1910	1680	1515	1360
70	1860	1638	1475	1330	1905	1680	1515	1365	1950	1715	1545	1390
65	1895	1675	1508	1355	1940	1710	1540	1385	1995	1750	1575	1420
60	1935	1705	1535	1380	1975	1740	1570	1415	2020	1780	1610	1450
55	1970	1735	1570	1410	2010	1775	1605	1445	2060	1815	1645	1480
50	2010	1770	1605	1445	2050	1810	1640	1475	2100	1850	1680	1510
45	2045	1810	1640	1475	2090	1850	1675	1510	2145	1890	1715	1540
40	2085	1850	1678	1510	2125	1890	1710	1540	2180	1930	1750	1575
35	2130	1890	1715	1545	2170	1930	1750	1575	2220	1975	1790	1610
30	2180	1930	1750	1575	2220	1970	1790	1610	2260	2020	1825	1645
25			1788	1608			1840	1655			1860	1675
20												
15												
10												
5												

Fig. 3—Sample Page of Equated Tonnage.

TONNAGE RATING OF ENGINES—AURORA DIVISION

Class of Engine	R-4 and R-5	R-4 and R-5	R-4 and R-5
Diam. of Drivers	69	69	69
Steam Pressure	210	210	210

CLYDE TO AURORA

No. of Cars	A	B	C	D
100	1655	1490	1290	1105
95	1680	1510	1315	1135
90	1705	1535	1350	1205
85	1730	1555	1375	1225
80	1755	1580	1400	1245
75	1795	1615	1438	1265
70	1835	1645	1480	1285
65	1875	1675	1475	1305
60	1905	1710	1500	1325
55	1935	1740	1535	1350
50	1965	1770	1560	1380
45	1995	1795	1590	1440
40	2030	1825	1660	1400
35	2065	1860	1700	1540
30			1740	1500

SHARONA TO CLYDE
AURORA TO MENDOTA

No. of Cars	A	B	C	D
100	2080	1785	1610	1450
95	2095	1815	1635	1470
90	2130	1845	1665	1500
85	2165	1875	1695	1525
80	2200	1905	1725	1555
75	2235	1935	1765	1590
70	2270	1970	1795	1615
65	2300	2000	1830	1645
60	2335	2025	1865	1680
55	2370	2055	1905	1715
50	2410	2090	1945	1750
45	2450	2125	1980	1780
40	2490	2160	2020	1820
35			2080	1855
30				

MENDOTA TO GALESBURG

No. of Cars	A	B	C	D
100	1795	1615	1440	1265
95	1830	1640	1460	1285
90	1845	1660	1480	1310
85	1870	1680	1500	1330
80	1895	1705	1525	1350
75	1920	1730	1550	1375
70	1950	1755	1575	1395
65	1980	1780	1600	1415
60	2010	1810	1625	1435
55	2040	1835	1650	1455
50	2070	1865	1680	1500
45	2100	1900	1715	1530
40	2140	1935	1750	1560
35	2175	1960	4785	1595
30			1835	1630

AURORA TO SAVANNA
BELPER ORDOM TO FOLO

No. of Cars	A	B	C	D
100	1230	1130	1050	
95	1265	1140	1080	
90	1280	1150	1075	995
85	1295	1170	1090	1010
80	1310	1180	1105	1025
75	1325	1195	1120	1040
70	1343	1215	1135	1055
65	1365	1230	1155	1070
60	1385	1250	1175	1085
55	1405	1265	1195	1100
50	1425	1285	1215	1115
45	1450	1310	1235	1135
40	1475	1330	1255	1160
35	1500	1355	1275	1180
30	1525	1375	1300	1200
25				
20				

SAVANNA TO SHARONA

No. of Cars	A	B	C	D
100	1535	1220	1120	1025
95	1570	1330	1135	1040
90	1585	1265	1150	1055
85	1600	1280	1165	1070
80	1615	1275	1180	1088
75	1630	1290	1195	1100
70	1650	1305	1215	1115
65	1670	1325	1235	1130
60	1690	1345	1260	1150
55	1510	1365	1280	1165
50	1530	1385	1300	1185
45	1555	1405	1320	1205
40	1580	1425	1340	1225
35	1605	1445	1360	1250
30	1630	1470	1385	1275
25			1410	1300
20			1435	1325

GALESBURG TO MENDOTA

No. of Cars	A	B	C	D
100	1925	1785	1500	1350
95	1958	1715	1525	1375
90	1990	1740	1045	1390
85	2025	1775	1585	1425
80	2060	1810	1615	1455
75	2095	1845	1650	1485
70	2130	1880	1685	1515
65	2165	1905	1720	1550
60	2200	1948	1755	1580
55	2235	1975	1790	1610
50	2275	2000	1830	1645
45	2315	2030	1870	1680
40	2355	2065	1900	1710
35	2400	2110	1940	1745

"RATE "A"—Temp. above 30 degrees F and not much wind.
RATE "B"—Temp. between zero and 30 degrees F., OR strong head or side wind, OR frosty rail.
RATE "C"—Temp. between zero and 30 degrees F AND strong head or side wind, OR temp. below zero and not much wind.
RATE "D"—Temp. below zero, with strong side or head wind

Fig. 4—Sample Tonnage Rates Shown in Time Card.

MOMENTUM GRADES.

Where the grade is not too long, the momentum, or the work stored in the train as motion, can often be used to help get the train over the grade. A body in motion has an amount of work stored in it dependent upon its speed, and this stored work can be used to overcome the force of gravity, or in other words, take a train a certain distance up a hill. The amount of work so stored increases as the square of the speed. A body moving 30 miles per hour has sufficient work stored in it to carry it vertically upward about 30 ft.; one moving 60 miles per hour sufficient for 120 ft., etc. Therefore, a train approaching a hill at 30 miles per hour could be taken a vertical distance of 30 ft., due to the momentum, provided the friction were otherwise taken care of. On a grade 30 ft. to the mile this distance along the track would be one mile; on a 60-ft. grade, one-half mile, etc. Where this momentum is to be expended, or to run out, in a given distance, the propelling force can be expressed as a pull of so many pounds per ton, or as a certain total drawbar pull at the head end of the train, or as so much negative grade, thus cutting down the actual grade and producing a lower virtual grade. For our purpose the simplest method is to express momentum as so much negative grade and its value may be figured by the following formula:

$$G_m = 3.5 \frac{V^2}{x}$$

Where G_m = equivalent grade in per cent.
V = speed in miles per hour
x = distance traversed during retardation, in feet.

Where a minimum speed of five miles per hour at top of grade is assumed, the equivalent grade would be determined as follows:

$$G_m = 3.5 \frac{V^2 - 25}{x}$$

For convenience a curve is used from which can readily be obtained the equivalent grade in per cent., having the speed of approach and length of grade, based on this formula. Having the actual grade and the momentum expressed as equivalent grade, the virtual grade is equal to the actual grade minus the momentum grade. The actual resistance of the train is, then, that due to the virtual grade plus the friction.

TRACTIVE FORCE AT SPEED.

Where the speed is above 8 or 10 miles per hour, the maximum tractive force cannot be sustained on account of the inability of the boiler to furnish sufficient steam, and when calculating tonnage rates on momentum grades, it is necessary to determine the average tractive force from the bottom to the top of the hill. It might be well to mention here that some engines are a bit over-cylindered; i. e., their tractive force figured from the cylinders is higher than the boiler can maintain, even at lower speeds. On the low-grade lines, where the train has to run at a considerable speed over the ruling grade, such engines should really be rated on their boiler capacities. This falling off of tractive force due to limit of boiler is calculated for all engines at speeds up to 40 miles per hour and plotted on a set of curves for convenient use.

The tractive force shown on these curves as limited by the boiler is obtained by the formula:

$$\text{Tractive Force} = \frac{375 \times .43\,H}{S} - R$$

Where H = heating surface in sq. ft.
S = speed in miles per hour
R = the total resistance in pounds of the engine and tender.

The expression .43 H gives the maximum cylinder horsepower of the locomotive assuming an evaporation of 12 lbs. of water per square foot of heating surface per hour, and cylinder water rate of 28 lbs. of water per horsepower hour. This is a formula given by Professor Goss and the results of our locomotive tests agree well with it, so it has been adopted. The expression $\frac{375 \times .43\,H}{S}$ converts horsepower into cylinder tractive force. Now to convert this cylinder tractive force into drawbar tractive force we must subtract R, the total resistance of the engine and tender. R is obtained by multiplying the weight in tons of the engine and tender with one-half its load of coal and water by the resistance per ton at the given speed.

The tractive force shown on these curves, at the average speed, will generally be found satisfactory. In figuring on a momentum grade it is necessary to know the speed limit of the division for freight trains, and whether there are any permanent slow orders at foot of hills due to bad curves, crossover, etc. It is hardly safe to regard as a momentum grade any grade over 1½ miles long or one that has several reverse curves on it.

EQUATED TONNAGE TABLES.

Having the total resistance per ton of any given train and the maximum working tractive force of the engine, the thing is now to get sufficient tonnage to just make the total train resistance balance this tractive force. The number of tons that will give this total resistance will, of course, vary with the load per car and the weather conditions, increasing as the load per car increases, and decreasing as the weather conditions become more severe. For operating use a rate table is prepared showing the number of tons for a various number of cars in the train and for four weather conditions, namely:

Rate "A"—Temperature above 30 deg. Fahrenheit and not much wind.

Rate "B"—Temperature between zero and 30 deg. Fahrenheit, *or* strong head or side wind, *or* frosty rail.

Rate "C"—Temperature between zero and 30 deg. Fahrenheit, *and* strong head or side wind, *or* temperature below zero and not much wind.

Rate "D"—Temperature below zero, with strong head or side wind.

The method of obtaining these tables is shown in detail in Fig. 2.

EXPLANATION OF METHOD.

The various tonnages shown in Fig. 2 all have the same drawbar resistance of 20,000 lbs., and are calculated for a 0.5 per cent. grade at freight car weights from 10 tons to 60 tons, column 1. In column 2 is shown the resistance per ton of cars of the various gross weights. This includes the grade and the friction resistances per ton. Next 20,000 is divided by the resistance per ton, to get column 3, showing the various tonnages having the total train resistance of 20,000 lbs. Then by dividing the number of tons by the gross weight per car column 4 is obtained, showing the number of cars in the train corresponding to the various tonnages. The columns of tons are then interpolated to the nearest even figure divisible by 5 and corresponding to an even number of cars divisible by 5 and placed in column 12, which is the column as finally used in rate schedules. Having column 12, the columns 5 to 10, inclusive, are obtained from columns 11 and 12 by multiplying by a suitable factor. For example, columns 5 and 6 are the intermediate steps in getting the "B" rate, and are obtained by the use of the factor .83, the ratio of resistance per ton of a 40-ton car on a 0.5 per cent. grade in warm weather, to the resistance per ton of a 40-ton car on a 0.5 per cent. grade in zero to 30 deg. Fahrenheit weather. This ratio or factor would vary slightly between the 10-ton car and the 60-ton car; the factors shown are obtained by taking an average of the ratios for the cars of the following weights: 10, 11, 12, 14, 16, 18, 20, 25, 30, 40, 50 and 60 tons. The tons and cars thus obtained are interpolated to even figures, and the tonnage placed in column 13, opposite the proper number of cars. The other columns are obtained similarly by using the suitable factor selected from the table shown.

Tables have been made showing the tonnages for grades from

0.3 per cent. to 1.6 per cent., and for total train resistances from 10,000 to 35,000 lbs. (See Fig. 3.) When, therefore, we have decided on the maximum working tractive force for a given grade, we simply select from the set of tables the suitable schedule and give this as the tonnage rate schedule for the engine. For practical use the rates thus decided upon are made out on tonnage rating sheets for each division, which show the number of cars and tons for the different rating divisions and for all classes of engines on that division. A page from the time-card of the Aurora Division of the Chicago, Burlington & Quincy Railroad, showing engine rates on that division, is shown in Fig. 4.

THE PASSENGER MAN AND THE PUBLIC*

Every man working for a railway today has a great responsibility—greater than ever before—and the passenger man, because of his position, his training and experience, is qualified to assume his share of that responsibility.

For many years, and particularly in the last few, there has been agitation about the so-called railway question or problem. Through lack of complete information about the railways, there has arisen some antagonism toward them, and it is important to explain the real situation, because the American people, when they know the truth, are not likely to be unjust to any one class of people or to any one business.

Upon one hand there is a critical public. Upon the other, the railways are struggling with forces which are causing rates to remain stationary, or to decline; causing wages to rise or to remain stationary; bringing demands from a prosperous and luxurious people for increasingly expensive facilities and service, and causing taxes to rise at an alarming rate.

These four forces are all at work reducing the margin between income and outgo and making it more and more difficult for the owners of railway properties to keep their lines in suitable condition to carry the business of the country, and to obtain a return commensurate with the risk of the business and sufficient to attract further investment.

Railway officers have been less active than they should have been in keeping in touch with the public. The railway stockholders have not realized how strong the forces affecting their properties are. This condition has changed and the modern railway owner, officers and employees, should and do realize that it is necessary to maintain cordial and friendly relations with the public and by their personal efforts and example to give full information about the business, and to build up a constantly better feeling towards the transportation machine of the United States.

It is no doubt true that little things—the abruptness of an agent or a trainman, a lack of proper courtesy, inattention to complaints of the public, dilatoriness—often caused quite as much criticism from the public as things of greater importance. This irritation and criticism can be reduced by adjusting the relations between the railways and the public at the point of contact. The passenger men and their representatives in 1909 came in contact with each one of nearly nine hundred million users of railways. In each of the nine hundred million instances some man had a chance to make or mar the reputation of his line and to affect just a little the attitude of the people toward the transportation business. Nine hundred million instances of courtesy and attention, or nine hundred million passengers completing a journey with a feeling that the railway was interested in their comfort and pleasure, would constitute a great leverage, moving public sentiment into better channels.

The passenger man cannot only build up cordial relations in the best way—and that is through pleasant contact of the individual with the individual—but has an opportunity to do an increasing amount of work in placing before the people the real facts about the railway business of this country, and can have a growing influence in showing a majority of the American people, who are only unfair because they do not fully understand this question, that the railways cannot indefinitely provide increasingly good service at rising costs, which the public demands and should have, and survive, unless there is more reason in directing and controlling the four forces I have mentioned.

There is plenty of information at hand about the railway business. No form of business in the United States is conducted so openly and in none are the facts and figures so available. This information does not reach the everyday citizen who is interested, but lacks ready sources of information, to the degree that it should. The passenger man can do a great work by seeing that it does.

The press of the United States reaches the people. In 1909 there were 22,603 publications issuing a total of 10,600,000,000 copies per year. The press can help the relations between the public and the railways by giving correct information, and, if approached properly, will usually manifest a fair attitude. The passenger man has a responsibility in this respect and with his more intimate knowledge of the business he can help the newspapers to avoid misstatements and false conclusions.

The drift of population in the United States is away from the country and into the cities. In 1840, slightly more than one-fifth of our people were engaged in commerce, manufacturing, mining and transportation, and in 1900 more than two-fifths were so engaged. Agriculture claimed 77½ per cent. of our people in 1840, and in 1900 but 35½ per cent. Four-tenths of our people are living in cities of 8,000 or more.

Passenger and immigration men and those in charge of exploitation can do a great national work in helping along the movement toward the land, and in aiding the people to get out of the crowded cities, breeding discontent, socialism and great suffering. The Bureau of Immigration reports that about 1,000,000 people a year come to the United States from Europe, and for the year ending with June, 1910, only 140,129 went west of the Mississippi river. It is better for the newcomer that he avoid the crowded industrial centers and live where he can produce food and wealth out of the ground, making a profit under good living conditions and increasing national production rather than to increase the horde of consumers in the crowded manufacturing districts.

The passenger man can make money for his railway by helping the movement of people back to the land, and at the same time perform a patriotic service to his country.

Steadily increasing public expenditures in this country are increasing all forms of taxation, which in turn bear heavily upon the railway investment and affect the daily lives of every man who is employed by a railway company. From 1900 to 1908, the ordinary expenses of the United States government grew 121.4 per cent., and in 30 selected states the public expenditures increased 201.6 per cent.

The passenger man, in addition to the regular duties of his office, can lend his influence toward checking the national tendency toward extravagance and can set an excellent example by care in the administration of the duties entrusted to him, by checking waste in all forms, and he can protect the owners of the property he represents by seeing to it that while the public is furnished clean, safe and regular transportation, it is not being given a service which is costing more than the users pay for it.

The National Monetary Commission estimated the annual expenditures of those who visit Europe at $200,000,000. The editor of the London *Statist* places the figures at $170,000,000. Some New York bankers, in discussing the matter with well-posted French financial authorities, thought the total was nearly $400,000,000. There is sufficient evidence that the amount is between $200,000,000 and $400,000,000. This immense sum is annually taken out of this country and spent abroad, by people who have gone away from home in search of health, rest and pleasure, which they might easily find nearer by.

If our own land were better known, much of this economic

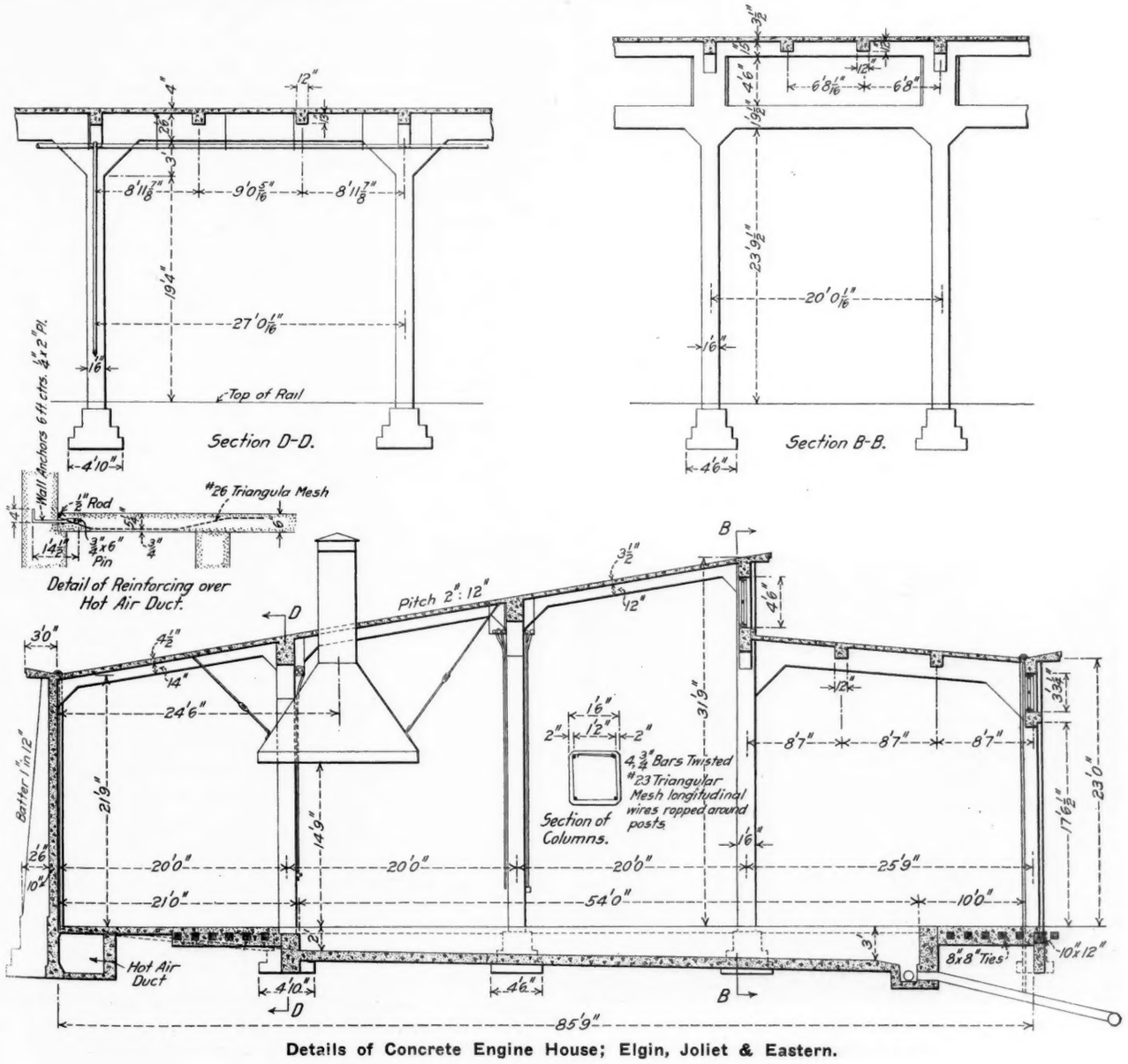
*Extracts from an address by Howard Elliott, president Northern Pacific Railway, before the American Association of General Passenger and Ticket Agents, St. Paul, Minn., September 20, 1911.

loss could be stopped, and the passenger man has an attractive field of work in so placing before the average American citizen the beauties and advantages of his own country that he will spend an increasing share of his travel time and these enormous sums in this country, thus keeping American money at home, and aiding in the development of the regions which offer so much, not only to the tourist, but to the homeseeker. We have mountains, scenic wonders and an out-doors comparable with anything Europe can offer. Each dollar diverted from Europe to our home regions assists in giving them continually better facilities for the accommodation of travel. Much of what we have to offer is unique and can be seen by the traveler in no other country.

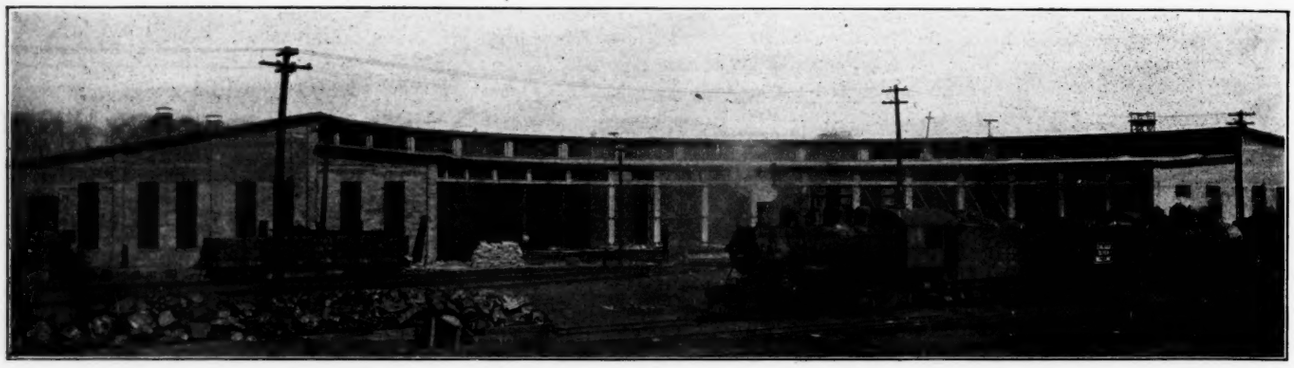
So, I repeat, we in the railway business have a greater responsibility than ever before; not only the responsibility of doing our best, whatever may be our position in the service, but the responsibility of telling the people the real facts about the railway business—the responsibility of using our opportunities to aid the nation by helping the movement to have a greater proportion of our population live in the country than in the cities—the responsibility of directing the attention of the tourist to the beauties of America, so that the money now going to foreign lands will remain here and help to increase the balance of trade in our favor—and last, but not least, the responsibility, which today is a great one to every American and to every railway employee, of encouraging the practice of those habits of industry, thoroughness and thrift, which are not so common in the last twenty-five years as they were when our country began its work of becoming a great nation.

CONCRETE ENGINE HOUSE; ELGIN, JOLIET & EASTERN.

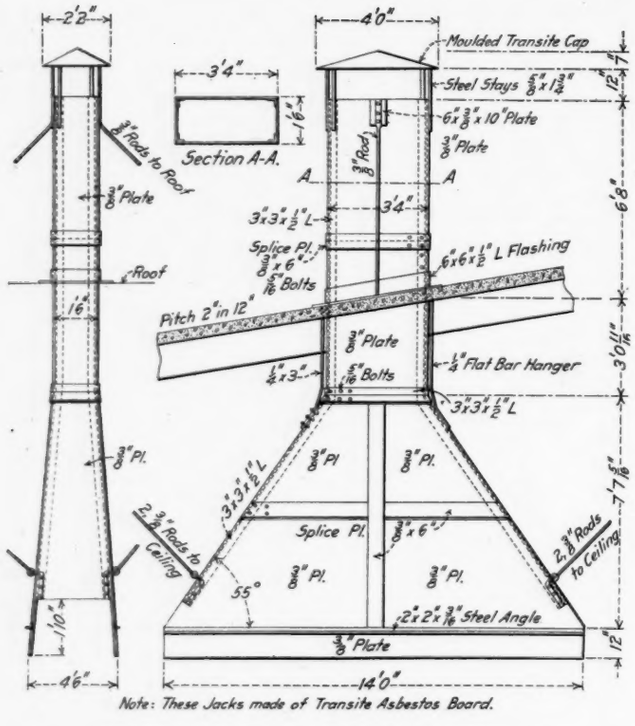
The Elgin, Joliet & Eastern has recently completed a concrete engine-house at its new terminal at Joliet, Ill. The house contains 17 stalls and is 85 ft. 9 in. wide inside the walls. The roof is supported by three rows of concrete columns. The three outer sections are 20 ft. spans and the inner one is 25 ft. 9 in. wide. There is a small extension 23 ft. x 24 ft. for the heating equipment. The walls of the house are 10 in. thick and are reinforced with buttresses having a batter of 1 in 12 and a width of 2 ft. 6 in. at the bottom. The cross section of the house clearly shows its construction. The roof is arranged to provide a space for light and ventilation above the flat portion of the inner section. The outside wall is constructed with paper joints under the windows and horizontal overhead joints between the windows, so that if a locomotive should run through and knock out the wall only a narrow portion would be damaged. The



Details of Concrete Engine House; Elgin, Joliet & Eastern.



Concrete Engine House; Elgin, Joliet & Eastern.

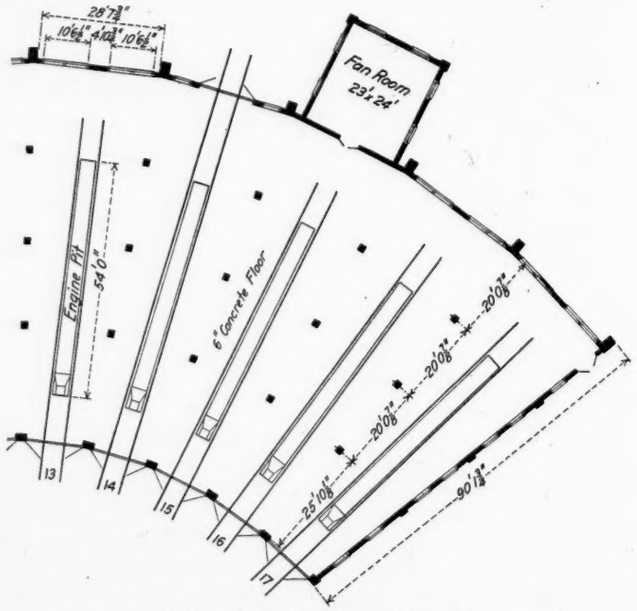


Smoke Jack for Concrete Engine House.

Interior of Engine House, Showing Concrete Columns and Roof Construction.

reinforced concrete beam above this joint is made of sufficient strength to support the roof when this portion of the wall is removed.

The roof is a monolithic slab varying from 3½ in. to 4½ in. thickness and is supported by reinforced concrete beams. It has a wide concrete projection at the cornice which is inclined upward so as to form a gutter. The necessary hangers and thimbles for the fixtures, including the electric conduits and piping, were inserted as the concrete work was formed, and the use of extension bolts for supports was avoided. The American Steel Wire Company's woven wire reinforcement was used in the roof. The general design of the smoke jacks is shown in the drawing. They are made of Johns-Manville Transite, the



Part Plan of Concrete Engine House.

asbestos plates being 3/8 in. thick. The floor is made of concrete 6 in. thick. The plant for washing out boilers was installed by the W. L. Miller Company, Chicago. The turntable, which was built by the American Bridge Company, is 80 ft. long, and is operated by an electric tractor furnished by Geo. P. Nichols & Bro., Chicago. In the construction of the building 150 tons of reinforcing steel and 4,500 barrels of cement were used. The contractors were the Cook-Lund Engineering & Construction Co., Chicago, and the design was worked out by A. Montzheimer, chief engineer of the Elgin, Joliet & Eastern.

Surveys are under way for a line in Brazil to connect the ports of Sao Francisco, Florianopolis, and Porto Alegre, and construction will be commenced as soon as they are completed.

THE EXPRESS SERVICE.*

BY C. E. TAYLOR,
General Superintendent, United States Express Company.

The express companies of today have attained their prominence in the transportation world solely by reason of the service they render, the time they make, and the care and attention they give to the individual shipper's business. They have kept fully abreast of the times in the conduct of their growing business, and their slogan today is, "Give the public the service," to such an extent as their income will justify to prudent business men. These companies in the past sixty years have made money; have saved money; have not turned all profits back to the owners and shareholders as earned; but all to a greater or less extent have put some of the profits back into the business and some to surplus, even to the extent of passing dividends, so that today they have a stronger financial standing in accordance with their capitalization than any other line of business known to me. Think of it—sixty years of existence, and the failure or bankruptcy of an express company unknown simply because of their business determination of saving some of the profits as a nest egg and ready money surplus immediately available to meet any emergency that ever has come up.

As to the character of the express service, I quote from the Interstate Commerce Commission's first annual report on express companies, as follows:

"The express service in and of itself is not a transportation service, although it is closely related to transportation, and the question of express rates involves the question of transportation rates. . . .

"The chief service rendered by express companies consists in collecting shipments intrusted to their care at points of origin, in safeguarding such shipments in transit, and in delivering them to consignees at destination. Transportation proper is furnished by the railway and other carriers over whose lines the express companies conduct operations, and the expense of such transporation is included in the operating expenses of those carriers."

The business of today, while similar to the business of the past, as to operation, is much curtailed as to the net earning power of the companies. This has been caused in the past decade by the continuous and gradual increase of salaries of employees, and of the cost of paraphernalia used in the express business; by the gradual—if slight—decrease in rates; and most emphatically by the faster and faster passenger train schedules put in force, which mean a larger percentage of the express earnings must go to the railway companies to meet such increased expense if the public is to be served by the fastest mode of transportation through its express companies. These various increased expenses to the express company are not as yet overcome by the growth in the volume of business, and, as a result, some express companies are making a hard struggle to earn enough net today to pay modest dividends to their stock or shareholders, and not dig into their surpluses nor impair their high financial standing.

The express business is peculiar to itself in that out of every gross dollar the companies charge the public for service, they immediately pay out in the form of wages, rents, horse-board, renewals of equipment, taxes, payments to railways, claims, general expenses, etc., from 90 to 98 cents. If some express companies can make net from three to five cents out of a gross dollar charge, they are doing well.

The rates in effect by express companies today are reasonable, we believe, based upon the cost of handling the business.

There are two ways to put the express companies out of business: One way is to raise the rates from 50 per cent. to 200 per cent., i. e., make them prohibitive to the public needing such service. That is the quickest way by reason of the kind of contracts obtaining between railway and express companies. The other way is to reduce the rates most materially, which could have but one outcome, namely, the ceasing of the carrying of express on passenger trains. You certainly must know that if express rates were made the same as freight rates, or the same as freight rates plus the cost of picking up and delivering, there would be no freight service, as the transportation would all be for movement by express on passenger trains. The traveling public will not stand for mixed trains today, but demand the fastest passenger service. Perhaps some of you have not thought of it before, but it is a fact that on the larger systems of railway it is a question of serious moment how they are to handle the express on passenger trains if its volume continues increasing, and the volume is increasing under the present rates, even in the face of the extremely good service offered by the freight departments of railways in the form of their fast freight lines and package cars of recent years. There is one thing certain to me and that is, that the reasonable rates charged by express companies today cannot be materially raised, nor materially lowered without detriment of the shipping public, as well as to the express companies, and I verily believe that this will be the conclusion reached by the Interstate Commerce Commission after the very thorough investigation of express matters upon which it is now engaging.

If you learn that the government postal department, in order to facilitate the more rapid movement of mails, causes a fast mail train to be run between such prominent business centers as Chicago and St. Paul, you will find the express company operating over such railway lines, will have one or two through express cars on the train, even though passengers are not carried, and the express cars will not run empty. These fast trains carrying express matter are sometimes profitable and sometimes not, but the express companies are keeping abreast of the times, and, to the extent of their ability and earnings as derived from the express rates in effect, giving to the public the best service possible, and continually working with the end in view of improving the service and making themselves more indispensable to the American shipping public.

I had intended to close this short talk with the foregoing, but have been asked to say something specifically as to the reasonableness of express rates because of its being prominently in the newspapers of today; I will speak of this only from an operating man's point of view. I am not a traffic man, and you must know that the traffic department and the operating department of railways and express companies are distinctly separate, and are conducted each by experts of their own, although the experts of each must have a general insight into the work of the other departments.

There are various kinds of contracts between express companies and railways, but the one most universally in use, particularly upon railway systems of any considerable mileage, is the percentage contract, by means of which of all express earnings accruing upon such railway, about 50 per cent. are paid over to the railway. It is true there are contracts where even a greater percentage is paid to railways, and likewise true that a lesser percentage is paid to railway companies. This percentage, however, in the past decade is gradually and surely increasing by reason chiefly of the claim of railways of the increased cost of furnishing continually better, i. e., faster and faster, express passenger train service.

Express companies, of course, have the cost of maintaining their general offices, tariff departments, auditing and accounting departments, their division superintendence, their messenger service accompanying the goods in transit, and their transfer expenses at junction points, but the greatest outlay of all is the terminal expense in cities of 10,000 population up to millions—the cost of picking up and delivering goods over such extensive areas.

The express companies do not and cannot, with the present terminal service furnished by them and demanded of them, make any money on short haul matter. They make their money on long haul matter. They carry any amount of short haul matter today at their present rates at a positive loss.

Example: You wish to go visiting to Aurora, Joliet, Elgin or Zion City and take your trunk, weighing 100 pounds, with you.

*From an address before the Chicago Transportation Association, Chicago, September 18, 1911.

The railways carry it free for you over their lines on your ticket, but you pay fifty cents to have a baggage company pick it up at your residence and take it to the Union Station, and you pay at the other end of your journey from 25 cents to 50 cents to have it delivered to your friend's house; and you do not consider the charges exorbitant.

The express rates from Chicago to the points named are from 50 cents to 60 cents per 100 pounds, and the express company will pick up your trunk within its delivery limits in Chicago and deliver it within its delivery limits at the points named, pay to the railways 25 cents or 30 cents of the 50 cents or 60 cents charge, leaving it from 12½ cents to 15 cents at each end of the line. You must know that even though the number of trunk shipments might be considerable, this is done by the express company at a positive loss where the area of free service is so large as in Chicago.

Now, if a trunk of such weight were going to St. Paul, Kansas City, Omaha, rate $2, distance 500 miles—more or less—the express company, after paying the railway $1, would have left 50 cents for each end of its line, and this transaction could, as a general thing, be done possibly at a profit, at least not at a loss.

If the trunk were going to Denver, Wichita, Fort Worth, or some other place where the rate was $5, after paying the railway its $2.50, the express company would have $1.25 for each end of the line, and it would make good net money out of the transaction after paying the terminal and messenger and transfer expenses.

Take a one-pound package of merchandise from Chicago to the points named: The charges are 25 to 30 cents. Pay 12½ to 15 cents to the railway, and do you suppose for a moment that the 6¼ to 7½ cents at each end of the line is enough to take care of the terminal charges, collect the charges upon delivery and pay line and overhead expenses?

Take a 7 pound package to the points named: Charges will be from 30 cents to $1, i. e., for express company, 7½ cents to 25 cents at each end of the line.

Take a 25-pound package to the points named: Charges will be from 35 cents to $1.85, i. e., 8¾ cents to 46¼ cents at each end of the line.

This sounds big, but it will not seem so when I tell you on the authority of the Interstate Commerce Commission's first annual express report that the average weight of a piece of express, weighing 100 pounds or less, is twenty-five and fifty-seven hundredths pounds, and the average revenue on same is forty-four and forty-seven hundredths cents. Further, the number of pieces of express weighing 100 pounds or less was over 95 per cent. of the total number of pieces handled. We have in this as concise and accurate a basis as can be arrived at. It is very hard to determine to a nicety what it costs to pick up a one-pound package at No. 50 State street, Chicago, and a 25-pound package at No. 52 State street, and a 100-pound package at No. 54 State street, all by the same wagon force on the same trip, or by different wagon forces on different trips; and there are no better statistics available as yet than these Interstate Commerce figures, which show that the express companies' rates or charges upon each package weighing 100 pounds or less regardless of distance to be transported, average about 44½ cents, and the weight averages about 25½ pounds.

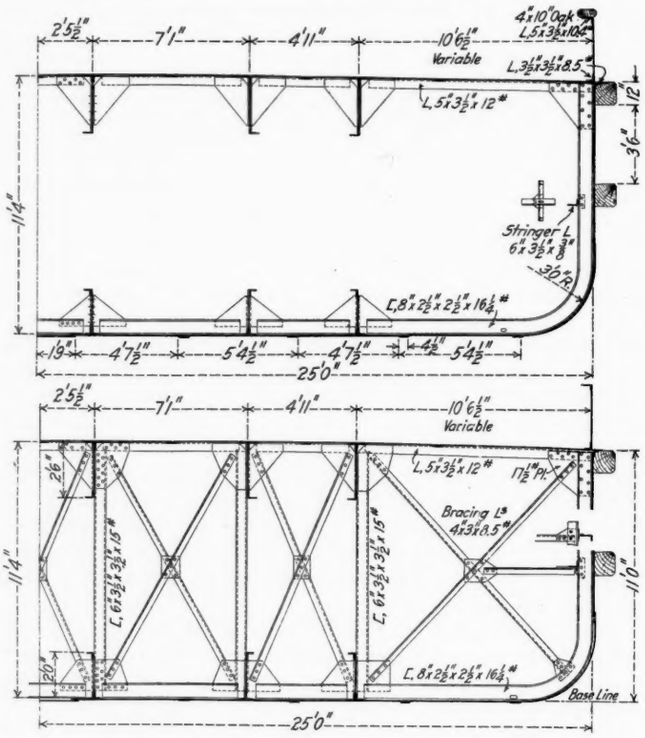
Now with the railway getting 22¼ cents, there is left to the express company 11½ cents for each end of the line for terminal expenses, general expenses, transfer expenses, line expenses, and in fact, expenses of all kinds, except only payments to the railways, and you may well believe that the management of express companies hold their operating offices right down to the line, authorizing disbursements only for expenditures actually needed for the conduct and welfare of the business.

Now, as to our present troubles: The boundaries of the average state are such that the interstate express carriage will be from one mile to 500 miles, with present express rates ranging on such mileage from 50 cents to $2.50 per 100 pounds. In other words, practically all interstate business comes under the head of short haul business, and so far as the greatest item of cost to an express company is concerned, namely, the terminal expense, it costs us just as much to pick up a piece of a given weight, whether it is to be transported a few miles at a 50 cent rate, 500 miles at a $2.50 rate, or 2,500 miles at an $11.50 rate. The result is obvious. We cannot stand any reduction on our short haul rates except at the cost to our long haul patrons.

I do not believe there is any express company which could operate over all the mileage in the state of Illinois and over absolutely no other mileage than in the state of Illinois, under the express rates in effect today and give the service the companies are giving except only at a continual loss.

STEEL BARGE MASTODON; MORGAN'S LOUISIANA & TEXAS.

The steel barge Mastodon was built by the New York Ship Building Company, Camden, N. J., for Morgan's Louisiana & Texas Railroad & Steamship Company, and it has been in service for over a year, transferring passenger and freight trains across the Mississippi river at New Orleans. She is said to be the largest steel barge in America. The barge takes over 16 passenger trains every 24 hours, and between these regular passenger trips she handles on an average about 3,200 freight cars per month. The boat has proved to be very satisfactory for the purpose, as she handles quicker and tows easier than the



Half Mid-Ship Sections.

old wooden boat now replaced, which was of smaller dimensions.

In ordinary conditions, when the current of the river is not particularly swift, one tug boat of about 1,000 h. p. is used to handle the barge. Under adverse weather conditions, or when the current of the river is unusually strong, an auxiliary tug of about 400 h. p. is employed.

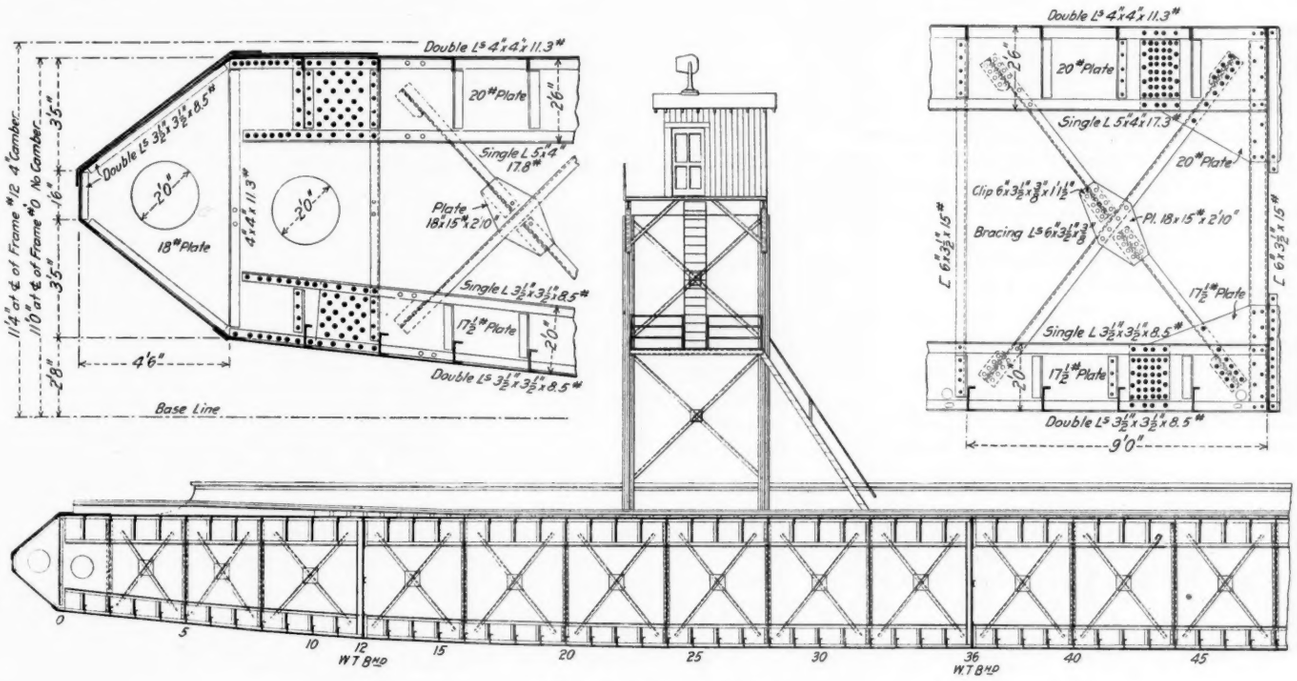
The trip from Camden, where the barge was built, to New Orleans took nine days. At the Delaware breakwater she was taken in tow by the Southern Pacific steamer El Paso, and towed around Hatteras down the Atlantic ocean, through the Straits of Florida, and across the Gulf of Mexico to the mouth of the Mississippi river. The journey down the Atlantic and

through the Straits was made under average weather conditions, at a speed of ten miles per hour. In the Gulf bad weather was encountered, but on arrival at New Orleans the barge was carefully examined and not a single loose rivet was found. The Mastodon was built extra strong, not only on account of the heavy loads of the trains to be carried, but also because it was necessary to tow her such a long distance in the open sea.

She is of steel throughout and carries three parallel tracks on 12 ft. centers. Under each rail there is a longitudinal girder running the entire length of the boat. This girder construction is designed so as properly to carry the heavy loads which double 4 in. x 4 in., 11.3-lb. angles, and one 4 in. x 5 in., 17.8-lb. angle at bottom. The bottom longitudinals are composed of 24-in. 17½-lb. plates, connected to the shell by double 3½ in. x 3½ in. 8.5-lb. angles, and one continuous angle of similar size on the upper edge.

All bottom plating is steel weighing 18 lbs. per sq. ft. The upper shell sheets are 22 lb. and the lower ones 20 lb. throughout, and the shell generally has double riveted edge landings and triple lap butts. Other principal figures relating to the construction are shown on the drawings.

A set of bell and whistle signals are placed on the after part



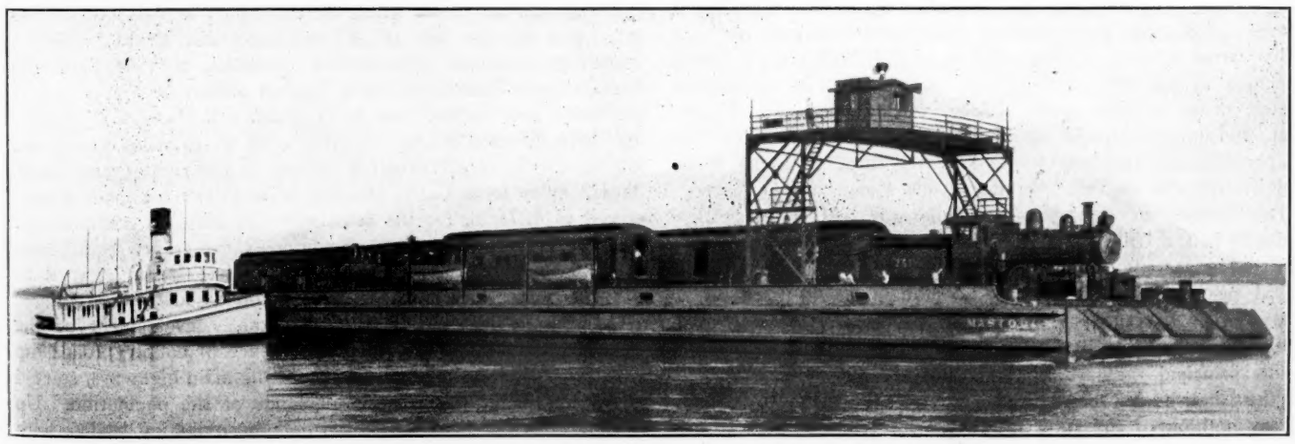
Framing of Steel Barge.

are imposed when the locomotive first comes on the barge tracks.

The following are the general dimensions of the boat: Length over all, 368 ft.; width of hull, 50 ft.; depth at center, 11 ft. 4 in. The general construction is shown in the drawings. The pilot house is located on a truss bridge 50 ft. from one end and 22 ft. 6 in. above rails. There is one continuous 15-lb. steel deck, and there are six water-tight bulkheads. The frame bars consist of 8-in. 16¼-lb. channels. The three longitudinal deck girders are 30 in deep, and the three bottom ones 24 in. deep. Those under the deck have a 30-in., 20-lb. web plate, with

of the barge and wires in a conduit lead from the pilot house to the signals. A search-light 14 in. in diameter is mounted on the roof of the pilot house, with necessary apparatus for manipulation from within. Electric current for the search-light and signaling is obtained from a generator on the tug, and steam pipes for the capstan and whistles are connected to the tug boiler.

We are indebted to Guy Hopkins, operating engineer of Morgan's Louisiana & Texas Railroad & Steamship Company, for the drawings, photograph and information relating to this large car transport.



Steel Barge Mastodon; Morgan's Louisiana & Texas.

ARGENTINE RAILWAYS.

The official report of the Argentine Ministry of Public Works for 1909 shows that the railway mileage of the country increased during the year 651 miles, making a total of 15,402 miles at the end of the year. Of this 524 miles was double-track road. Of the total, 9,519 miles was of 5 ft. 6 in. gage, 1,318 of standard (4 ft. 8½ in.) and 4,565 of metre gage. There were 400 inhabitants per mile of railway—a little more than in this country. The capital invested was $56,673 per mile, against $59,259 in this country. The state owned 1,894 miles in Argentina, all of metre gage. The rolling stock was at the rate, per 100 miles of railway, of 18.4 locomotives, 16.1 passenger cars and 408 freight cars; while in the United States there were 24.3 locomotives, 19.3 passenger cars and 881 freight cars per 100 miles. The average weight of the Argentine passenger cars was 27 tons; of 8-wheeled freight cars, 29,000 lbs. on the broad gage, 23,000 lbs. on the standard, and 17,600 on the metre gage.

This average locomotive mileage was 26,800; only 65 per cent. of which was train mileage, and 30 per cent. credited to switching. The average mileage made by passenger cars was 36,434 miles; by freight cars, 9,087.

The traffic was at the rate, per mile of road, of 82,494 passengers and 278,073 tons per mile of road, or, more intelligibly, to 113 passengers and 381 tons of freight moved each way daily over the entire system, which may be compared to the daily movement in this country of 189 passengers and 1,493 tons per mile. Argentina resembles, so far as traffic is concerned, our Middle West at an earlier day; its production being almost exclusively agricultural, and growing rapidly as the pampas are brought under cultivation, and stock growing extends in the previously uninhabited districts to the south. In 1909 live stock made up 9.3 per cent. of the total freight carried; farm products, 31.5 per cent.; building materials, 17.2 per cent.; manufactures (nearly all flour, sugar and spirits), 10.5 per cent. Coal made but 2¼ per cent. of the whole, and was not half the weight of the firewood and charcoal carried.

The importance of Argentina in the world's markets is due not so much to the quantity of grain and stock produced, but to the fact that, the population being small, by far the larger part of it is exported. Argentina has little more than 6,000,000 inhabitants; but in 1909 its railways carried 156,500,000 bushels of wheat, 106,000,000 of corn, and over 31,000,000 of flaxseed. And while here by far the larger part of our corn is fed at home, in Argentina only 286,550 hogs were carried in 1909 (against 4,500,000 cattle and 10,300,000 sheep).

That year was an unfavorable one in Argentina, however. The year before 19 per cent. more sheep, 17½ per cent. more wool, nearly 40 per cent. more wheat, and 25 per cent. more flaxseed was carried. The pampas are liable to droughts and to visitations of locusts, which make the production very uneven.

The average rates received in 1909 were 1.89 cents per passenger mile, and 1.71 cents per ton mile, against, in the United States, 1.928 cents per passenger mile and 0.763 cent per ton mile. Gross earnings in Argentina were $6,452 per mile, working expenses 61 per cent., and net earnings $2,620. In the United States, gross earnings were $10,356, working expenses 66 per cent., and net earnings $3,505 per mile, or railways having carried 69 per cent. more passenger and nearly three times as much freight per mile as the Argentine roads.

The number of employees per mile was 6.81 in Argentina and 6.38 in the United States. The traffic effected per employee was 12,114 passenger miles and 40,833 ton miles in Argentina; 19,953 passenger miles and 149,527 ton miles in the United States. The average pay per employee was $435 in Argentina and $657 here.

The principal railways in Argentina are owned and worked by the English; but there is also an important French system, to say nothing of the state railways. The shop employees are largely foreigners, including many British, but the chief foreign population is Italian.

THE CONDITION OF THE EGYPTIAN RAILWAYS.

In a communication by M. P. Arminjon, in the *Revue Economique Internationale* there was given recently a general resumé of the Egyptian railway situation. According to Prof. Arminjon, the railways owned and operated by the Egyptian government have a total length of 1,975 miles. In 1880, the first year of the reign of Tewfik Pasha, there were but 888 miles so owned. Even 10 years later the system had only grown by 61 miles. In 1902 construction was vigorously pushed and the purchase from the Keneh Assonan Railway of the 186 miles of line which it was operating raised the figure to 1,447 miles. Since then the government acquired, in 1906, 392 miles of standard gage track from the Sucveries company and, in 1909, bought from the Corporation of Western Egypt 122 miles, connecting Fashut, in upper Egypt, with the grand oasis of Khargeh in the Libyan desert.

The Egyptian treasury now realizes a remunerative revenue from its railways. This is shown by the following table, taken from the latest financial statement:

Year.	Gross Receipts.	Disbursements.	Net Receipts.
1905	$15,504,589	$8,627,213	$6,877,376
1906	16,887,917	9,536,191	7,351,726
1907	18,481,167	10,125,375	8,354,792
1908	17,809,378	10,794,286	7,015,092
1909	16,918,907	10,228,032	6,690,875

It will be seen from the above that the operating expenses run at from 61.35 to 64 per cent. of the gross receipts.

The following table gives the growth of the capital invested:

Year.	Capital.	Year.	Capital.
1902	$105,665,472	1906	$120,568,800
1903	108,176,032	1907	125,639,424
1904	110,319,667	1908	130,123,657
1905	114,048,000	1909 (provided).	130,429,440

For the past ten years a number of private companies have been busily engaged in the construction of secondary narrow gage lines in the Delta and the province of Fayoum. For the most part they are well built, and collectively they contribute almost as much traffic as that which is drawn from the standard railway of the state. In 1907 the Egyptian Light Railway operated 573 miles; the Lower Egypt Railway, 68 miles; the Fayoum Light Railways, 104 miles; the Salt & Soda Company, which has a concession of the valley of Wady Natroum, 31 miles. The Daira of the khedive has at last built a road along the west coast of the Mediterranean, which has been carried as far as Fuka, 133 miles, of which 99 miles is of standard gage, as far as Debba, and which will eventually be extended, without doubt, in the direction of Tripoli. The total length of the Egyptian railways is, therefore, about 2,480 miles. If we consider that the superficial area of the country, disregarding the desert, is but 12,665 square miles, including the Nile and the canals, which reduce the habitable area of the country to 11,072 square miles (about the area of Belgium or Sicily) and to about 800 square miles of arable land, it is seen that these figures of railway mileage make a very creditable showing.

The main line which serves Egypt from Alexandria to the first cataract, and from which all the others branch, crosses the two arms of the Nile to Kafr-el-Zaiat and Benha, where a branch connects for Zagaziz and Ishmailah at Port Said and Suez. From Tantah, which is located almost at the center of the Delta, another line runs to Damietta and Mansourah; reaching Cairo, it again crosses the Nile, from which place it is on the left bank. At Nag-Hamadi it crosses to the right (east) bank. At 417 miles from Cairo, starting from Luxor the gage is narrowed to 41.75 in. for the remaining 136 miles to Assouan, the terminus. The gages of the Egyptian Railways are as follows: State, 4 ft. 8.5 in.; Khargeh Oasis, 29.5 in.; Delta Light Railways, 29.5 in.; Fayoum, 29.5 in.; Luxor-Assouan, 41.75 in.

One of the reasons for the remarkable development of the Egyptian railways is the complete absence of country roads, up to a recent period, and the inability of the main highways, started in 1890, to meet the growing demands of the population. Up to that time, the Nile, the canals and the irrigating basins, with a few miles of roads laid out about the principal cities, supplied the only means of inland communication.

General News Section.

The Office of Public Roads, of the Agricultural Department, has issued bulletin No. 38, describing methods of examining bituminous road materials.

The plans for building new subways in Boston are said to be now in condition to be carried out; the state legislation and the city government having taken final action preparatory to the beginning of work.

The government has begun suit at Los Angeles against the San Pedro, Los Angeles & Salt Lake for violation of the hours-of-service law, in requiring certain telegraphers to work more than nine hours a day.

The educational bureau of the Illinois Central, since the announcement of its establishment on July 1, has received 5,000 applications for membership from employees of the road. More than 2,300 employees are regular students of one or more of the different courses offered.

The Great Northern Railway is to install telephones for use in train despatching on 119 miles of its lines in the state of Washington, having ordered selectors from the Western Electric Company. This road now has nearly 4,000 miles of telephone lines in use for train despatching.

The "California Limited" of the Atchison, Topeka & Santa Fe, running between Chicago and Los Angeles, and which was put on in the month of May last, has passed Albuquerque on time every trip but two; and the westbound train has arrived in Los Angeles on time every trip but two.

An airship built for the British government was wrecked at Barrow-in-Furness, England, last Sunday, the first time it was taken out of its shed. This balloon is said to have cost $400,000 and the wreck appears to have been the result largely of improper design of the framework.

Officers of the Nashville, Chattanooga & St. Louis were called before the Governor of Georgia this week to answer to charges of having exacted illegal charges on the Western & Atlantic division of the road, which is owned by the state of Georgia and operated under contract by the N. C. & St. L.

It has been announced that within a short time the Texas & Pacific will use oil instead of coal for fuel on all of its locomotives, and that on the Texas and Arkansas divisions of the St. Louis Southwestern also oil is to be used exclusively, the supply for these two roads to be obtained from the Caddo oil fields in Louisiana.

The victory of the conservative party in the recent election in Canada is expected to cause a change in the status of the Hudson Bay Railway. Construction of this railway has already been begun by the Laurier government and it was the intention to lease it to one of the large companies; but the conservatives, in their campaign speeches, promised that the road should be not only owned, but operated by the government.

On the line of the Canadian Pacific last Sunday, telephone conversation was carried on between Montreal and Fort William, 995 miles over a No. 9 iron telegraph wire, grounded; and, according to the reports, the experiment was a marked success. The instruments used are of a new design, invented by David H. Wilson of Chicago. The apparatus is said to be well adapted to use on composite circuits—telegraph and telephone.

Figures compiled from the records of 32 of the leading Texas railways show that during the fiscal year ended June 30, 1911, a total of $2,505,084 was paid out by them in the settlement of personal injury cases, being an average of $184.68 for every mile or road operated and included in the compilation. This amount was 2.63 per cent. of the total operating revenue of the roads and 3.4 per cent. of the total operating expenses for the same period.

High heels and hobble skirts are responsible for a large proportion of the injuries sustained by women while getting on and off trains and mounting and descending stairways in stations. The Pennsylvania Railroad in three months had 73 such cases. The reports read: "Heel caught on step of coach and tore off"; "High heel caught while descending stairs, wore hobble skirt", and so on. And the claim agent, with all his philosophy can only sigh, and observe that "women of all times have followed styles that are dangerous to life and limb."

Clerks, weighmasters and warehouse employees of the Illinois Central and the Yazoo & Mississippi Valley, at Memphis, Tenn.; New Orleans, La., and Jackson and Vicksburg, Miss., went out on a strike on September 25, between 600 and 700 men being involved. The strike order is said to have been issued because the roads refused to recognize the union and arrange a system contract, and because three members of the organization holding union cards were discharged at East St. Louis, Ill. The officers anticipated no trouble in filling the places of the striking clerks. At New Orleans on the 27th, according to a press despatch 410 sheet metal workers and locomotive firemen struck, in sympathy with the clerks.

Between 1,500 and 1,600 car shop men and inspectors on the Missouri, Kansas & Texas went out on a strike on September 23 following a disagreement with the officers regarding a new schedule of wages. The employees asked that officers grant a joint conference to the men on the lines in Texas and those on the other parts of the system, which, according to the legal department of the railway, cannot legally be done under the law of Texas, requiring corporations doing business in Texas to maintain their separate identity. President A. A. Allen said that officers of the Missouri, Kansas & Texas Railway and of the Missouri, Kansas & Texas of Texas are willing to meet the workmen of each corporation, but they cannot meet Texas workmen in conference with workmen not employed by the Texas corporation. The principal shops of the system at Sedalia, Mo., and Denison, Tex., were closed when the strike order was issued.

The strike of track-repair men on the Delaware, Lackawanna & Western appears to have been a complete failure. The officers of the road say that in New York state the places of the men who left work were readily filled, and that in Pennsylvania only one-third of the men joined in the strike. In New Jersey none of the men left their work; yet the appeal of the leader of the strikers to the governor of that state elicited from him a letter, which was published, saying that in his opinion the men seemed to be making a just and reasonable demand; that officers of the railway company were unwisely hostile and that the head of the New Jersey Department of Labor ought to co-operate with the authorities of New York State, with a view to helping the strikers. State Labor Commissioner Bryant called on President Truesdale of the railway, but reported that his visit had been fruitless. On Tuesday of this week special officers armed with rifles were reported in service along the Bloomsburg division of the road and also the trains of that division. Assaults on some of the trackmen led to the conclusion that special guards were necessary.

Pennsylvania Trains in the Hudson Terminal.

The Pennsylvania Railroad announces that beginning October 1 passenger trains will be run through between Manhattan Transfer 6.4 miles west of Jersey City and the Hudson Terminal, Church and Cortlandt streets, New York, using the Hudson river tunnel of the Hudson & Manhattan Railroad. Thus passengers by the Pennsylvania traveling to or from lower New York City will change cars at Manhattan Transfer instead of at Jersey City, and in the case of trains which run to or from the Thirty-second street (uptown) station, passengers will have to change only once, instead of twice as at present. This six-mile section of the New York division has been electrified and is to be made a separate despatching division because of the use of it by the electric trains of the Hudson & Manhattan. New automatic block signals have also been put in. These are upper-quadrant three-position, the same as those on the new line to the Pennsylvania terminal, at Thirty-second street. The Hudson & Manhattan tunnel tracks emerge and join the tracks of the Pennsylvania at a point a short distance east of Shanley's Cut, between Jersey City and Marion, and about one mile from the

river. The time of trains from Hudson terminal to Manhattan Transfer will be 16 minutes, the same as that of trains from the uptown terminal.

A special train with officers of the Hudson & Manhattan and the Pennsylvania Railroad ran through from the Hudson Terminal in Manhattan to the Manhattan Transfer in New Jersey, on September 27, over the new line of the Hudson & Manhattan, which is to be completed to Newark, N. J. The run was made in 15 minutes and 15 seconds, which is a minute and a quarter faster than the schedule time for regular trains. The Pennsylvania Railroad will continue its shuttle trains between Manhattan Transfer and Jersey City, and there will be 10 incoming trains and five outgoing trains, which now use the Jersey City station, which will hereafter arrive at and depart from the Pennsylvania station, in New York City. The road from Manhattan Transfer on to Newark is finished, except about 50 ft. of viaduct. The fares through the tube and on to Newark will be the same as the Pennsylvania charges for the same trip at present. About two-thirds of the way the trains will run over Pennsylvania tracks, and the Pennsylvania paid for about 60 cars. They are labeled with the name of Hudson & Manhattan, but are painted Pennsylvania red. On the completion of the line to Newark, the Hudson & Manhattan will run trains from New York to Newark.

Railway Schooling in Pittsburgh.

The Evening School of Economics of the University of Pittsburgh will this year give special courses in transportation and allied subjects. The courses will be given Thursday evenings. The plan will provide systematic study of the origin and development of American railways, their present ownership and control, the organization of the railway company and how it does its work, financing, the freight, passenger and mail service, regulation by the federal and state authorities, the work and decisions of the Interstate Commerce Commission, the principles of rate making, and government ownership. Attention also will be given to the inland waterway question and merchant marine, subsidies, etc.—*Pittsburgh Times.*

Inspectors of Safety Appliances and Hours of Service.

The United States Civil Service Commission announces an examination on November 6-7, 1911, to secure eligibles from which to fill positions of inspectors of safety appliances and inspector of hours of service for the Interstate Commerce Commission, unless it shall be decided in the interest of the service to fill such vacancies by reinstatement, transfer, or promotion. It is expected that approximately six appointments will be made to the position of inspector of safety appliances and four appointments to the position of inspector of hours of service. The salary of the position of the former is $1,800, the latter, $1,500. The duties of the safety appliance inspectors will comprise the making of inspections and reports as required by the safety appliance acts; the duties of the hours of service inspectors will be the making of inspections and reports as required by the hours of service law. Both safety appliance and hours of service inspectors may be required to investigate accidents as required by section 3 of the accident investigation law of May 6, 1910.

Applicants for the position of inspector of safety appliances must have had at least eight years' experience in steam railway service as conductor, engineman, trainman, yardman, fireman, or yardmaster, or at least five years' such experience as manager, general or division superintendent, trainmaster, master mechanic, master car builder, general car foreman, road foreman of engines or air-brake supervisor, and must, within two years next preceding the date of his application, have been in active service in one or more of the capacities mentioned, or as an inspector of steam railway equipment under the government of the United States or any state or territory, provided he has had experience in any one or more of the positions above referred to.

Applicant for the position of inspector of hours of service must have at least eight years' experience as trainmaster, yardmaster, train despatcher, telegraph operator, block-signal operator, conductor, engineman, fireman, trainman, or yardman.

No person interested either directly or indirectly in any patented article required to be used on any locomotive or car under inspection shall be eligible for appointment to either of these positions.

The scope of the practical questions to be given applicants for the position of inspector of safety appliances will be generally the equipment of locomotives and cars as prescribed by the United States safety appliance standards, and train operation and rules (comprising practical questions relating to the construction, repair, operation, and inspection of locomotives, cars, and their appurtenances).

The applicants for the position of inspector of hours of service will be given practical questions on standard train and block-signal rules, on the operation of trains, the manner of keeping train sheets, time records, and block-signal records, etc.

A Problem in Psychology.

A paragraph in the court news of a New York paper says that a lawyer, who died in 1906, and whose estate has just been settled, had 751,860 shares of worthless mining stocks. Surely this is an awe inspiring record. Was he an altruist, buying up these securities so as to remove temptation from the innocent public? Or was he merely a selfish collector, carried away by his enthusiasm as a connoisseur of engravings?

A Disciple of Brandeis.

A fireman was up for examination for promotion. He passed a fair test on the rules and machinery, but during all of it the examiner was constantly lecturing him as to the need of economy in the use of fuel and oil, so that by the time he finished his examination it was pretty well on his nerves.

Having finished the technical part the examiner put to him this question: "Supposing you are the engineer of a freight train on a single track, and you see that a collision with a passenger train is imminent and you know that you could not stop your train, what would you do?"

The man, unstrung by the vigorous instruction he had received as to economy, replied: "Why, I would grab the oil can in one hand and a lump of coal in the other, and jump."—*Atchison Globe.*

Equipment Note.

The passenger traffic on the Morristown & Erie has increased 30 per cent. within the last year, yet the company has not added to the carrying capacity of the road. The same old car (which previous to its installation on the line, was one of the venerated relics of the Erie) is the only accommodation. But there are rumors that the company is going to double its capacity; is going to procure another car—one made after the Civil War, not before—and if this is a fact it may deter patrons from making an appeal to the state railway commission.—*New York Commercial.*

U. S. Steel.

To quiet unfounded rumors, the directors of the United States Steel Corporation, after a meeting on Tuesday last, issued the following statement, signed by Messrs. J. Pierpont Morgan and Elbert H. Gary, Committee of the Board:

"No negotiations whatever have taken place between the Steel Corporation and the Department of Justice looking to the dissolution or disintegration of the corporation. The corporation was organized for business reasons and purchased its various plants to promote such business and not to restrain trade or obtain a monopoly. In all its operations the company has scrupulously observed the law and recognized the just rights of its competitors and the consumers of its products. So far as its directors are aware, no complaint has ever been made against it by either of these interests. The directors are advised by its counsel that its existence is not in violation of the Sherman act as interpreted in the recent decisions of the Supreme Court.

"In view of this record and this advice the directors feel that their duty to their stockholders, their employees and the public requires that they should set at rest all rumors to the effect that they are contemplating any voluntary dissolution or disintegration of the corporation, or have any belief that it is subject to such dissolution or disintegration by legal action. We believe that the organization is legal and that its management is proper

Its properties are of immense intrinsic value and the corporation is of benefit to the public interest."

Another statement given out was to the effect that customers are buying only for immediate requirements. "Nevertheless, strange as it may seem, the volume of prompt business is larger than usual, specifications running upwards of 30,000 tons a day. Of the 4,500,000 tons on the books, of which 920,000 tons is inter-company business, it may be said, from the standpoint of mill operations, it is better business than an old time contract order book of double the tonnage, inasmuch as it represents active business capable of specifications in sufficient volume as required to operate our mills on the present basis for some months to come."

Railway Strike in Ireland.

Railway traffic has been seriously disturbed in Ireland since September 16, when large numbers of the employees of the Great Southern & Western went out on a sympathetic strike. Freight traffic was almost completely suspended throughout the lines of the three principal roads, and the passenger train service was badly disorganized for several days. Press despatches received the middle of last week indicated that the strike was spreading and the food supplies of the larger cities were becoming short; but later reports seem to indicate that the companies have got the better of the strikers. The strike was neither for higher pay nor shorter hours, but was to compel the companies to refuse to carry timber shipped by merchants whose employees had struck. There were the usual reports of hostile demonstrations against the "strike breakers," and of the activities of pickets in persuading new men not to go to work. In general, however, there was little violence. Troops were called out to guard some of the lines.

Los Angeles Traffic Association.

The Los Angeles Traffic Association held its annual dinner at the Angelus Hotel in that city, September 18. The president of the association for the ensuing year is E. L. Blair; secretary, C. E. Cline. The semi-monthly luncheons of the association will be resumed beginning October 2. On October 20 members of the association will go to San Francisco on invitation of the traffic club of that city.

Cleveland Engineering Society.

At the meeting of this society held September 26, a paper on Smoke Prevention was presented by Paul F. Bird, of the Commonwealth Edison Co., formerly chief smoke inspector of the city of Chicago.

Northern Railway Club.

At the meeting of this club in Duluth, Minn., on September 23, a paper on Engine Failures was presented by George S. Stewart, superintendent of the Great Northern.

Railway Business Association.

The third annual dinner of the Railway Business Association will be given on Wednesday, November 22, at the Waldorf-Astoria, New York.

Applications for seatings by wire will be honored. Tables will be of two sizes, seating ten and eight. The price is $10 per plate. All companies who are members of the association are entitled to subscribe for as many seats as they desire for themselves and friends. Announcement will be made at an early date of the names of the speakers. Frank W. Noxon is secretary, 2 Rector street, New York.

MEETINGS AND CONVENTIONS.

The following list gives names of secretaries, dates of next or regular meetings, and places of meeting.

AIR BRAKE ASSOCIATION.—F. M. Nellis, 53 State St., Boston, Mass.
AMERICAN ASSOCIATION OF DEMURRAGE OFFICERS.—A. G. Thomason, Scranton, Pa.
AMERICAN ASSOCIATION OF GENERAL PASSENGER AND TICKET AGENTS.—C. M. Burt, Boston, Mass.
AMERICAN ASSOCIATION OF FREIGHT AGENTS.—R. O. Wells, East St. Louis, Ill.
AMERICAN ASSOCIATION OF RAILROAD SUPERINTENDENTS.—O. G. Fetter, Carew building, Cincinnati, Ohio; 3d Friday of March and September.
AMERICAN ELECTRIC RAILWAY ASSOCIATION.—H. C. Donecker, 29 W. 39th St., New York; October 9-13, 1911, Atlantic City, N. J.
AMERICAN RAILWAY ASSOCIATION.—W. F. Allen, 75 Church St., New York; November 15, 1911, Chicago.
AMERICAN RAILWAY BRIDGE AND BUILDING ASSOCIATION.—C. A. Lichty, C. & N. W., Chicago; Oct. 17-19, 1911, St. Louis, Mo.
AMERICAN RAILWAY ENGINEERING ASSOCIATION.—E. H. Fritch, Monadnock Block, Chicago; annual convention, March 19-21, 1912, Chicago.
AMERICAN RAILWAY MASTER MECHANICS' ASSOCIATION.—J. W. Taylor, Old Colony building, Chicago.
AMERICAN RAILWAY TOOL FOREMEN'S ASSOCIATION.—O. T. Harroun, Bloomington, Ill.
AMERICAN SOCIETY FOR TESTING MATERIALS.—Prof. E. Marburg, University of Pennsylvania, Philadelphia, Pa.
AMERICAN SOCIETY OF CIVIL ENGINEERS.—C. W. Hunt, 220 W. 57th St., New York; 1st and 3d Wed., except June and August, New York.
AMERICAN SOCIETY OF ENGINEERING CONTRACTORS.—D. J. Haner, 13 Park Row, New York; 3d Tuesday of each month, New York.
AMERICAN SOCIETY OF MECHANICAL ENGINEERS.—Calvin W. Rice, 29 W. 39th St., New York.
ASSOCIATION OF AMERICAN RAILWAY ACCOUNTING OFFICERS.—C. G. Phillips, 143 Dearborn St., Chicago; annual, June 26, 1912, Quebec, Que.
ASSOCIATION OF RAILWAY CLAIM AGENTS.—J. R. McSherry, C. & E. I., Chicago; annual convention, May 22, 1912, Los Angeles, Cal.
ASSOCIATION OF RAILWAY ELECTRICAL ENGINEERS.—Jos. A. Andreucetti, C. & N. W. Ry., Chicago; annual, November 6-10, Chicago.
ASSOCIATION OF RAILWAY TELEGRAPH SUPERINTENDENTS.—P. W. Drew, 135 Adams St., Chicago; annual, June 24, 1912, New York.
ASSOCIATION OF TRANSPORTATION AND CAR ACCOUNTING OFFICERS.—G. P. Conard, 75 Church St., New York; December 12-13, Louisville, Ky.
CANADIAN RAILWAY CLUB.—James Powell, Grand Trunk Ry., Montreal, Que.; 2d Tuesday in month, except June, July and Aug., Montreal.
CANADIAN SOCIETY OF CIVIL ENGINEERS.—Clement H. McLeod, 413 Dorchester St., Montreal, Que.; Thursdays, Montreal.
CAR FOREMEN'S ASSOCIATION OF CHICAGO.—Aaron Kline, 841 North 50th Court, Chicago; 2d Monday in month, Chicago.
CENTRAL RAILWAY CLUB.—H. D. Vought, 95 Liberty St., New York; 2d Thurs. in Jan. and 2d Fri. in March, May, Sept., Nov., Buffalo, N. Y.
CIVIL ENGINEERS' SOCIETY OF ST. PAUL.—D. F. Jurgensen, 116 Winter St., St. Paul, Minn.; 2d Monday, except June, July and Aug., St. Paul.
ENGINEERS' SOCIETY OF PENNSYLVANIA.—E. R. Dasher, Box 704, Harrisburg, Pa.; 1st Monday after 2d Saturday, Harrisburg, Pa.
ENGINEERS' SOCIETY OF WESTERN PENNSYLVANIA.—E. K. Hiles, 803 Fulton building, Pittsburgh; 1st and 3d Tuesday, Pittsburgh, Pa.
FREIGHT CLAIM ASSOCIATION.—Warren P. Taylor, Richmond, Va.; annual Buffalo, N. Y.
GENERAL SUPERINTENDENTS' ASSOCIATION OF CHICAGO.—E. S. Koller, 226 W. Adams St., Chicago; Wed. preceding 3d Thurs., Chicago.
INTERNATIONAL RAILWAY CONGRESS.—Executive Committee, rue de Louvain, 11 Brussels; 1915, Berlin.
INTERNATIONAL RAILWAY FUEL ASSOCIATION.—D. B. Sebastian, La Salle St. Station, Chicago.
INTERNATIONAL RAILWAY GENERAL FOREMEN'S ASSOCIATION.—L. H. Bryan, D. & I. R. Ry., Two Harbors, Minn.
INTERNATIONAL RAILROAD MASTER BLACKSMITHS' ASSOCIATION.—A. L. Woodworth, Lima, Ohio.
IOWA RAILWAY CLUB.—W. B. Harrison, Union Station, Des Moines, Ia.; 2d Friday in month, except July and August, Des Moines.
MASTER BOILER MAKERS' ASSOCIATION.—Harry D. Vought, 95 Liberty St., New York.
MASTER CAR BUILDERS' ASSOCIATION.—J. W. Taylor, Old Colony building, Chicago.
MASTER CAR AND LOCOMOTIVE PAINTERS' ASSOCIATION, OF UNITED STATES AND CANADA.—A. P. Dane, B. & M., Reading, Mass.
NEW ENGLAND RAILROAD CLUB.—G. H. Frazier, 10 Oliver St., Boston, Mass.; 2d Tuesday in month, except June, July, Aug. and Sept., Boston.
NEW YORK RAILROAD CLUB.—H. D. Vought, 95 Liberty St., New York; 3d Friday in month, except June, July and August, New York.
NORTHERN RAILWAY CLUB.—C. L. Kennedy, C., M. & St. P., Duluth, Minn; 4th Saturday, Duluth.
OMAHA RAILWAY CLUB.—H. H. Maulick, Barker Block, Omaha, Neb.; second Wednesday.
RAILROAD CLUB OF KANSAS CITY.—C. Manlove, 1008 Walnut St., Kansas City, Mo.; 3d Friday in month, Kansas City.
RAILWAY CLUB OF PITTSBURGH.—C. W. Alleman, P. & L. E., Pittsburgh, Pa.; 4th Friday in month, except June, July and August, Pittsburgh.
RAILWAY INDUSTRIAL ASSOCIATION.—G. L. Stewart, St. L. S. W. Ry., St. Louis, Mo.; annual, May 12, 1912, Kansas City, Mo.
RAILWAY SIGNAL ASSOCIATION.—C. C. Rosenberg, Bethlehem, Pa.; annual, Oct. 10, Colorado Springs, Colo.
RAILWAY STOREKEEPERS' ASSOCIATION.—J. P. Murphy, Box C, Collinwood, Ohio.
RICHMOND RAILROAD CLUB.—F. O. Robinson, Richmond, Va.; 2d Monday, except June, July and August.
ROADMASTERS' AND MAINTENANCE OF WAY ASSOCIATION.—L. C. Ryan, C. & N. W. Sterling; September 10, 1912, Buffalo, N. Y.
ST. LOUIS RAILWAY CLUB.—B. W. Frauenthal, Union Station, St. Louis, Mo.; 2d Friday in month, except June, July and Aug., St. Louis.
SOCIETY OF RAILWAY FINANCIAL OFFICERS.—C. Nyquist, La Salle St. Station, Chicago.
SOUTHERN ASSOCIATION OF CAR SERVICE OFFICERS.—E. W. Sandwich, A. & W. P. Ry., Montgomery, Ala.; annual, October 20, Atlanta, Ga.
SOUTHERN & SOUTHWESTERN RAILWAY CLUB.—A. J. Merrill, Grant bldg., Atlanta, Ga.; 3d Thurs., Jan., March, May, July, Sept., Nov., Atlanta.
TOLEDO TRANSPORTATION CLUB.—J. G. Macomber, Woolson Spice Co., Toledo, Ohio; 1st Saturday, Toledo.
TRAFFIC CLUB OF CHICAGO.—Guy S. McCabe, La Salle Hotel, Chicago; meetings monthly, Chicago.
TRAFFIC CLUB OF NEW YORK.—C. A. Swope, 290 Broadway, New York; last Tuesday in month, except June, July and August, New York.
TRAFFIC CLUB OF PITTSBURGH.—D. L. Wells, Erie, Pittsburgh, Pa.; meetings monthly, Pittsburgh.
TRAIN DESPATCHERS' ASSOCIATION OF AMERICA.—J. F. Mackie, 7042 Stewart Ave., Chicago; annual, June 18, 1912, Louisville, Ky.
TRANSPORTATION CLUB OF BUFFALO.—J. M. Sells, Buffalo; first Saturday after first Wednesday.
TRANSPORTATION CLUB OF DETROIT.—W. R. Hurley, L. S. & M. S., Detroit, Mich.; meetings monthly.
TRAVELING ENGINEERS' ASSOCIATION.—W. O. Thompson, N. Y. C. & H. R., East Buffalo, N. Y.
WESTERN CANADA RAILWAY CLUB.—W. H. Rosevear, P. O. Box 1707, Winnipeg, Man.; 2d Monday, except June, July and August, Winnipeg.
WESTERN RAILWAY CLUB.—J. W. Taylor, Old Colony building, Chicago; 3d Tuesday of each month, except June, July and August.
WESTERN SOCIETY OF ENGINEERS.—J. H. Warder, 1735 Monadnock Block, Chicago; 1st Wednesday in month, except July and August, Chicago.
WOOD PRESERVERS' ASSOCIATION.—F. J. Angier, B. & O., Baltimore, Md.; annual, January 16-18, Chicago.

Traffic News.

At a meeting of officers of the different lines belonging to the Chicago Demurrage Bureau, which for 20 years has handled for the Chicago railways matters relating to the collection of demurrage and car service, it was decided that it would be more economical for each road to assume for itself the assessment and collection of these charges, and the bureau will, therefore, be abolished on September 30.

An automobile service has been established in Chicago by the Chicago Motor Company between the new Chicago & North Western passenger terminal and the retail store of Marshall Field & Company. Four coaches are used in the service, and more will be added as the demand for them increases. The first coach leaves the Clinton street entrance of the station at 7:45 a. m., and it is expected that they will run at regular nine-minute intervals from the station throughout the day, the last one leaving at 5:47 p. m. On the return trip passengers are left at the Madison street entrance of the station. The coaches are intended for the convenience of suburban patrons of the road who shop in Chicago.

The rate on flour from Minneapolis to New York for domestic consumption, by rail to Duluth, boat to Buffalo, and thence by rail, has been reduced from 23 cents per 100 lbs. to 21½ cents, the new tariff to go into effect October 5. Shortly after the tariffs were filed with the Interstate Commerce Commission, the eastern roads concluded that they wished to withdraw their concurrence in them, but on application to the commission for leave to do this, on short notice, they were met with a refusal. The commission says it is not believable that Congress intended that the power to suspend rates should be exercised when rates are voluntarily reduced by a carrier, and where undue discrimination does not appear on the face of the tariff.

"It is asserted in the protest of the trunk lines that the reduced rates will result in much loss of revenue to them, because the reductions necessarily will be followed by reductions in rates from belated points. This may be, but the matter thus appears to be one for adjustment between the interested carriers and not properly by the commission under the law." Permission to withdraw concurrences in the tariffs on short notice was denied by the commission, because such action would withdraw the through routes and joint rates, thus resulting in much higher charges than are now effective. Such a condition, in the opinion of the commission, would be worse than that for which the protest is made.

Car Surpluses and Shortages.

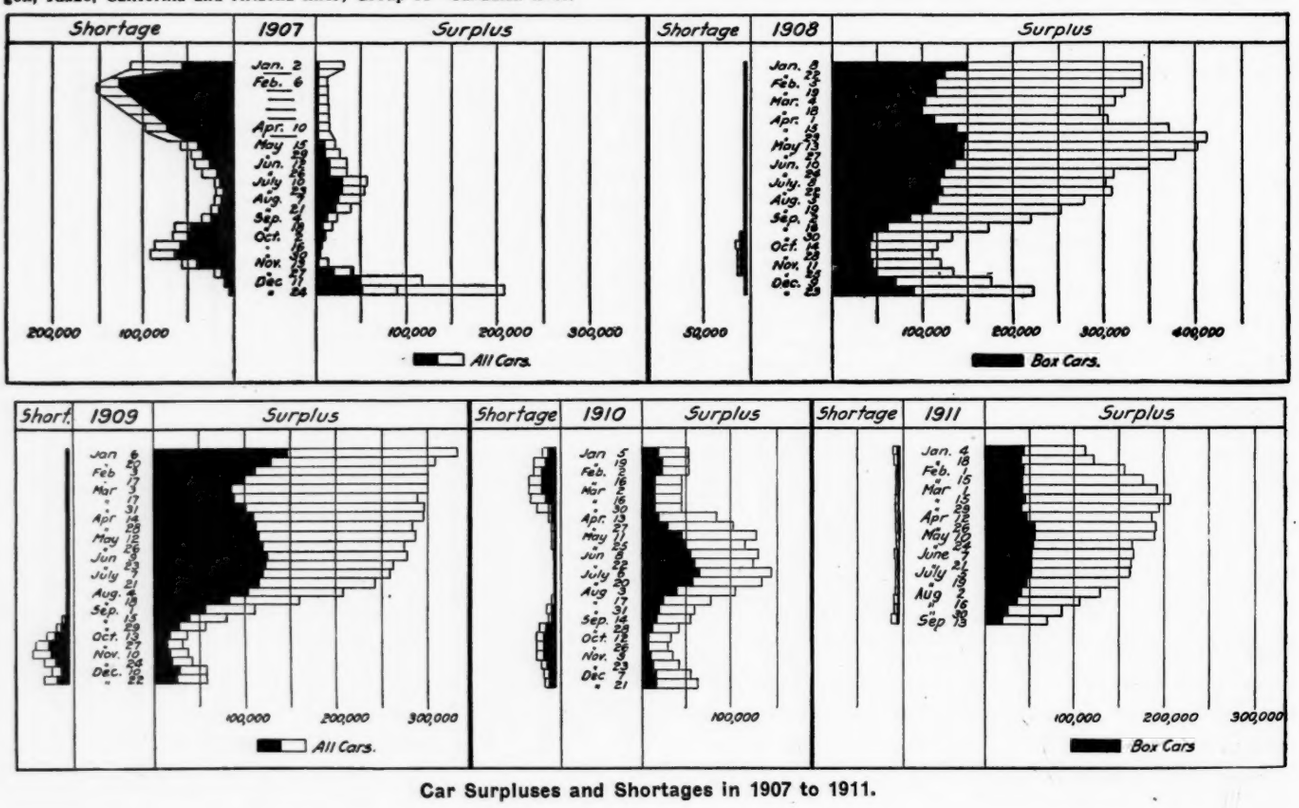
Arthur Hale, chairman of the committee on relations between railways of the American Railway Association in presenting statistical bulletin No. 103, giving a summary of shortages and surpluses by groups from May 11, 1910, to September 10, 1911, says:

"The total surplus reported for the period ended September

Car Surpluses and Shortages.

Date.	No. of roads.	Surpluses Box.	Flat.	Coal, gondola and hopper.	Other kinds.	Total.	Shortages Box.	Flat.	Coal, gondola and hopper.	Other kinds.	Total.
Group *1,—September 13, 1911	7	0	473	1,252	327	2,052	662	126	250	0	1,038
" 2,— " 13, 1911	25	1,137	60	5,514	2,178	8,889	104	3	316	5	428
" 3,— " 13, 1911	25	1,893	237	8,393	2,320	12,843	307	100	582	85	1,074
" 4,— " 13, 1911	10	136	90	458	1,391	2,075	247	411	500	0	1,158
" 5,— " 13, 1911	17	461	35	1,094	1,056	2,646	12	0	0	0	12
" 6,— " 13, 1911	24	7,869	813	2,119	4,819	15,620	98	0	1	2	101
" 7,— " 13, 1911	4	446	47	87	640	1,220	0	0	0	0	0
" 8,— " 13, 1911	17	3,331	403	2,153	3,363	9,250	250	22	0	0	272
" 9,— " 13, 1911	11	1,020	170	502	832	2,524	30	319	0	0	349
" 10,— " 13, 1911	22	2,078	841	1,364	6,635	10,918	357	0	0	15	372
" 11,— " 13, 1911	4	1,048	78	859	700	2,685	1,385	141	0	109	1,635
Total	166	19,419	3,247	23,795	24,261	70,722	3,452	1,122	1,649	216	6,439

*Group 1 is composed of New England lines; Group 2—New York, New Jersey, Delaware, Maryland, and Eastern Pennsylvania lines; Group 3—Ohio, Indiana, Michigan and Western Pennsylvania lines; Group 4—West Virginia, Virginia, North and South Carolina lines; Group 5—Kentucky, Tennessee, Mississippi, Alabama, Georgia and Florida lines; Group 6—Iowa, Illinois, Wisconsin, Minnesota and the Dakotas lines; Group 7—Montana, Wyoming and Nebraska lines; Group 8—Kansas, Colorado, Missouri, Arkansas and Oklahoma lines; Group 9—Texas, Louisiana and New Mexico lines; Group 10—Oregon, Idaho, California and Arizona lines; Group 11—Canadian lines.



Car Surpluses and Shortages in 1907 to 1911.

13, 1911, is 70,722 cars, a decrease of 18,144 cars as compared with the previous period, and is the lowest figure reported since December 21, 1910. Of the decrease of 18,144 cars, 8,689 are box cars, 5,454 are coal cars and 4,414 are miscellaneous. Flat cars show an increase of 413 cars. The decrease in all classes of cars is heaviest in group 2 (New York, New Jersey, Delaware, Maryland, Eastern Pennsylvania), 3 (Ohio, Indiana, Michigan, Western Pennsylvania), and 10 (Oregon, Idaho, California, Arizona). Groups 9 (Texas, Louisiana, New Mexico), and 11 (Canadian Lines) show a slight increase.

"The shortage increased from 4,325 cars on August 30, 1911, to 6,439 cars on September 13, 1911, an increase of 2,114 cars."

The accompanying table gives the figures for surpluses and shortages for the last period covered by the report and the chart shows total bi-weekly surpluses and shortages in 1907 to 1911.

Burlington Agricultural Pamphlets.

The industrial department of the Chicago, Burlington & Quincy has issued and distributed five pamphlets concerning the growing of wheat, corn, oats, alfalfa, orcharding, dry farming, farming under irrigation and soil fertility in the states of Illinois, Iowa, Missouri, Nebraska, Colorado and Wyoming. The pamphlet intended for each state has been prepared by members of the faculty of the agricultural college of that state, and relates to the principal farm products of that state. For Illinois, how to increase crop production and improvement of soil and seed are discussed by James H. Pettit, professor of soil fertility, and Louie H. Smith, professor of plant breeding at the University of Illinois. For Iowa, discussions of whether winter wheat is profitable, facts for the corn grower, soil fertility, fruit and potatoes, alfalfa, and "Is the Iowa Farmer a Robber?" have been prepared by Professors P. G. Holden, M. L. Mosher and G. R. Bliss of the Iowa State College, and E. R Shoemaker, editor of *Kimball's Dairy Farmer*. For Missouri, the soil, rotation of crops, production of the corn crop, oat production, wheat production and tobacco growing are discussed by F. H. Demaree of the college of agriculture of the state university. For Nebraska, corn culture, oats culture, soil fertility, orcharding, wheat culture and alfalfa are discussed by Professors Montgomery, C. W. Pugsley and V. V. Westgate of the University of Nebraska. In a single pamphlet devoted to Colorado and Wyoming, scientific soil culture, farming non-irrigated lands and farming under irrigation are discussed by Professor H. W. Campbell of Lincoln, Neb., and Professor W. H. Olin of Denver, Colo. Copies of the pamphlets may be obtained by addressing E. A. Howard, real estate and industrial commissioner at Chicago, or E. M. Westervelt, assistant real estate and industrial commissioner, at Lincoln, Neb.; or from local agents or division freight agents of the company.

INDEX OF PAGE NUMBERS IN THE RAILWAY AGE GAZETTE ON WHICH EARNINGS AND EXPENSES HAVE BEEN REPORTED.

	1910.						1911.					
	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.
Alabama & Vicksburg	477	756	1092	1201	253	428	874	1081	1292	1706	194	297-8
Alabama Great Southern	553	756	1020	1201	137	428	808	1011	1183	1440	98-9	260
Ann Arbor	477	756	1092	1201	253	428	808	1011	1292	1706	194	*
Arizona Eastern	553	806	1092	1277	253	428	808	1081	1292	1706	194	297-8
Atchison, Topeka & Santa Fe	477	705	938	1124	179	298	517	917	1126	1327	56	297-8
Atlanta & West Point	553	....	....	57	....	473	....	....	....	....	....	*
Atlanta, Birmingham & Atlantic	553	756	980	1163	137	365	808	1011	1183	1440	98-9	352
Atlantic & St. Lawrence	594	....	....	57	....	473	....	....	1292	....	....	*
Atlantic City	594	806	1020	1277	253	473	....	....	....	1706	194	*
Atlantic Coast Line	477	705	938	1124	137	298	517	917	1126	1327	56	297-8
Baltimore & Ohio—System	594	806	980	1201	97	331	517	917	1183	1440	98-9	297-8
Baltimore & Ohio Chicago Terminal	553	....	....	....	....	....	....	....	....	....	....	297-8
Bangor & Aroostook	477	665	980	1163	137	298	808	1011	1183	1440	98-9	297-8
Belt Ry. Co. of Chicago	594	....	....	....	....	....	....	....	....	....	....	*
Bessemer & Lake Erie	477	665	1020	1201	137	365	....	1081	1183	1440	98-9	260
Boston & Maine	477	705	938	1124	97	298	517	917	1126	1327	56	352
Buffalo & Susquehanna R. R.	....	....	1092	57	....	473	874	....	1292	1706	194	*
Buffalo & Susquehanna Ry	....	....	....	....	....	473	874	....	1292	1706	194	*
Buffalo, Rochester & Pittsburgh	....	665	980	1163	137	298	706	962	....	1440	98-9	260
Butte, Anaconda & Pacific	553	....	....	57	....	473	....	....	....	....	....	352
Canadian Pacific Lines in Maine	....	....	....	....	....	....	....	....	....	....	....	*
Carolina, Clinchfield & Ohio	477	806	1092	1277	253	428	874	1081	1292	1706	194	352
Carolina, Clinchfield & Ohio of S. C.	....	....	....	1277	253	428	874	1081	1292	1706	194	352
Central New England	553	665	1020	1277	179	365	874	1081	1183	1440	98-9	352
Central of Georgia	553	705	980	1163	97	298	706	962	1183	1440	194	*
Central of New Jersey	....	705	938	1124	97	331	517	917	1126	1327	98-9	*
Central Vermont	553	756	1020	1163	137	428	808	1011	1183	1440	98-9	*
Charleston & Western Carolina	477	806	1092	1277	253	365	808	1011	1292	1706	194	297-8
Chesapeake & Ohio	553	705	980	1163	97	298	517	917	1183	1327	56	352
Chesapeake & Ohio of Indiana	553	806	1092	1277	253	365	874	1081	1183	1327	56	352
Chicago & Alton	....	806	1020	57	179	331	706	917	1183	1327	56	352
Chicago & Eastern Illinois	477	705	980	1124	97	331	706	962	1126	1440	98-9	352
Chicago & Erie	477	665	1020	1201	179	365	808	1081	1183	1440	98-9	260
Chicago & North Western	477	665	938	1124	253	298	706	917	1126	1327	56	260
Chicago, Burlington & Quincy	477	705	938	1124	179	298	706	917	1126	1327	56	352
Chicago Great Western	553	705	980	1124	137	331	706	962	1126	1440	56	297-8
Chicago, Indiana & Southern	477	756	1020	1277	179	428	808	1011	1183	1440	98-9	297-8
Chicago, Indianapolis & Louisville	553	756	980	1163	97	365	808	962	1183	1440	194	*
Chicago, Milwaukee & Puget Sound	553	705	938	1124	179	331	517	917	1183	1327	98-9	297-8
Chicago, Milwaukee & St. Paul	553	705	938	1124	179	331	517	917	1183	1327	98-9	297-8
Chicago, Peoria & St. Louis	553	806	1092	1277	253	473	874	1081	1292	1706	194	352
Chicago, Rock Island & Gulf	553	756	1020	1277	137	365	874	1011	1183	1440	98-9	297-8
Chicago, Rock Island & Pacific	477	705	938	1124	137	298	517	917	1126	1327	56	297-8
Chicago, St. Paul, Minneapolis & Omaha	477	665	938	1124	179	298	706	917	1126	1327	56	260
Cincinnati, Hamilton & Dayton	553	665	980	1124	137	298	706	962	1126	1440	98-9	260
Cincinnati, New Orleans & Tex. Pac	553	756	1020	1201	97	428	808	1011	1183	1440	98-9	260
Cincinnati Northern	477	756	1092	1277	253	473	....	....	....	....	....	352
Cleveland, Akron & Columbus	477	665	1020	1277	253	365	874	1081	1183	1440	98-9	260
Cleveland, Cincinnati, Chicago & St. Louis	477	705	938	1124	97	331	517	917	1183	1327	56	297-8
Colorado & Southern	553	806	980	1163	97	331	706	962	1183	1440	98-9	297-8
Colorado Midland	553	756	1092	1201	253	365	874	1081	1292	1706	194	260
Cumberland Valley	477	665	1020	1277	179	365	874	1081	1183	1440	98-9	260
Delaware & Hudson Co.—R. R. Dept	....	705	938	1163	137	331	517	917	1183	1440	56	260
Delaware, Lackawanna & Western	477	665	938	1124	179	298	517	917	1126	1327	56	297-8
Denver & Rio Grande	553	705	938	1163	97	298	517	962	1126	1327	98-9	297-8
Denver, Northwestern & Pacific	594	806	1092	1277	....	473	....	....	....	....	....	297-8
Detroit & Mackinac	553	....	....	57	....	473	....	....	....	....	....	297-8
Detroit, Grand Haven & Milwaukee	594	806	1092	57	253	473	874	1081	1292	1706	....	*
Detroit, Toledo & Ironton	477	756	1092	1201	253	428	808	1011	1292	1706	194	297-8
Duluth & Iron Range	....	756	1020	1201	179	473	....	1081	1292	1440	98-9	260
Duluth, Missabe & Northern	553	665	1020	1201	179	473	....	1081	1292	1440	98-9	260
Duluth, South Shore & Atlantic	477	756	1092	1201	137	365	808	1011	1183	1440	98-9	297-8
El Paso & Southwestern Co	477	665	980	1163	179	331	706	962	1183	1440	98-9	297-8
Elgin, Joliet & Eastern	477	756	980	1163	179	331	706	962	1183	1440	98-9	260
Erie	477	665	938	1124	179	298	517	917	1126	1327	56	260
Evansville & Terre Haute	477	756	1020	1277	137	365	874	1011	1183	1706	98-9	352
Florida East Coast	477	756	1020	1163	179	365	808	962	1183	1440	98-9	297-8
Fort Worth & Denver City	477	665	1092	1163	179	365	808	1011	1183	1440	98-9	260
Galveston, Harrisburg & San Antonio	553	756	980	1163	97	298	706	962	1183	1440	98-9	297-8
Georgia	553	756	1092	1201	137	365	808	1011	1183	1440	98-9	297-8
Georgia Southern & Florida	594	806	1092	1201	179	428	808	1081	1292	1706	....	*
Grand Rapids & Indiana	477	665	980	1163	137	298	808	1011	1183	1440	98-9	260

	1910.						1911.					
	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	March.	April.	May.	June.
Grand Trunk Western	594	806	1020	1201	179	428	808	1081	1292	1706	....	*
Great Northern	477	705	938	1124	97	298	517	917	1126	1327	56	297-8
Gulf & Ship Island	553	806	1092	1277	....	428	874	1081	1292	1706	194	352
Gulf, Colorado & Santa Fe	477	705	938	1124	97	331	706	962	1126	1327	98-9	297-8
Hocking Valley	594	665	1092	1201	253	428	808	1011	1183	1440	98-9	352
Houston & Texas Central	477	756	980	1163	137	365	706	1011	1183	1440	98-9	297-8
Houston East & West Texas	477	....	....	....	....	473	....	....	....	....	....	297-8
Illinois Central	594	806	980	1201	97	331	517	962	1183	1440	56	352
Indiana Harbor Belt	553	....	....	....	....	....	....	....	....	....	....	297-8
Indianapolis Southern	....	....	....	....	57	....	473	....	....	....	....	....	*
International & Great Northern	594	806	980	1201	253	428	706	962	1183	1706	194	352
Iowa Central	....	806	....	1201	253	428	706	962	1183	1440	98-9	297-8
Kanawha & Michigan	594	806	1020	1201	253	428	....	1081	1183	1440	98-9	297-8
Kansas City, Mexico & Orient	....	....	....	57	253	428	874	....	1292	....	....	*
Kansas City Southern	553	665	980	1124	97	331	706	962	1126	1440	98-9	260
Lake Erie & Western	477	756	980	1124	97	331	706	962	1183	1440	98-9	297-8
Lake Shore & Michigan Southern	477	705	938	1124	97	331	517	917	1126	1327	56	297-8
Lehigh & Hudson River	553	....	....	57	....	473	....	....	....	....	....	352
Lehigh Valley	477	665	938	1124	253	298	517	917	1126	1327	56	*
Long Island	477	756	1020	1277	137	365	808	1011	1183	1440	98-9	260
Louisiana & Arkansas	553	806	1092	1277	....	473	874	1081	1292	1706	194	297-8
Louisiana Ry. & Nav. Co	594	806	1092	1277	253	428	874	1081	1292	1706	194	297-8
Louisiana Western	553	756	1092	1277	253	428	874	1081	1292	1706	194	297-8
Louisville & Nashville	477	705	938	1124	137	298	517	917	1126	1327	56	352
Louisville, Henderson & St. Louis	477	....	....	57	....	473	....	....	....	....	....	297-8
Maine Central	477	756	980	1163	179	298	706	962	1126	1440	98-9	297-8
Michigan Central	477	705	938	1124	97	331	517	917	1126	1327	56	297-8
Midland Valley	....	....	....	57	137	473	874	1081	1292	1706	194	*
Minneapolis & St. Louis	....	806	....	1201	253	428	706	962	1183	1440	98-9	297-8
Minneapolis, St. Paul & Sault Ste. Marie	....	806	1092	1201	179	428	874	1081	1292	1440	56	*
Missouri, Kansas & Texas	553	705	938	1163	253	331	706	962	1183	1440	194	352
Missouri, Kansas & Texas of Texas	594	705	938	1163	253	331	706	962	1183	1440	98-9	297-8
Missouri Pacific	....	....	....	1201	253	428	517	1081	1183	1706	98-9	*
Mobile & Ohio	553	705	980	1163	97	298	706	962	1183	1440	98-9	297-8
Monongahela	553	....	....	....	....	....	....	....	....	....	....	260
Morgan's La. & Tex. R. R. & S. S. Co	553	756	1020	1201	253	428	874	1011	1183	1440	98-9	297-8
Nashville, Chattanooga & St. Louis	553	806	980	1163	97	331	706	962	1183	1440	98-9	352
Nevada Northern	594	....	....	57	....	473	874	....	....	....	194	*
New Orleans & North Eastern	477	756	1092	1201	253	428	874	1081	1183	1440	98-9	297-8
New Orleans Great Northern	477	665	1092	1277	....	428	874	1081	1292	1706	194	*
New Orleans, Mobile & Chicago	....	....	1092	1277	137	428	874	1011	1183	1706	194	*
New Orleans, Texas & Mexico	....	....	....	....	....	428	....	....	....	....	....	*
New York Central & Hudson River	477	705	938	1124	97	331	517	917	1126	1327	56	297-8
New York, Chicago & St. Louis	594	705	980	1163	179	473	706	962	1183	1440	98-9	260
New York, New Haven & Hartford	477	665	938	1124	97	298	517	917	1126	1327	56	352
New York, Ontario & Western	477	705	980	1163	97	298	706	962	1183	1440	98-9	297-8
New York, Philadelphia & Norfolk	477	665	1020	1277	179	365	874	1081	1183	1440	98-9	260
New York, Susquehanna & Western	477	665	1020	1201	179	365	874	1081	1183	1440	98-9	260
Norfolk Southern	477	665	1020	1163	179	365	808	1011	1183	1440	98-9	260
Norfolk & Western	477	665	938	1124	179	298	517	917	1126	1327	56	260
Northern Central	477	665	1020	1124	137	365	808	1011	1292	1440	98-9	260
Northern Pacific	477	705	938	1277	179	298	517	917	1126	1327	56	352
Northwestern Pacific	553	806	1020	1201	179	365	874	1011	1292	1706	98-9	*
Oregon-Washington R. R. & Nav. Co	....	....	....	....	....	331	706	917	1126	1706	56	297-8
Oregon-Washington	553	806	1092	1277	253	331	....	....	....	....	....	....
Oregon R. R. & Nav. Co	553	705	980	1163	97	331	....	....	....	....	....	....
Oregon Short Line	553	705	980	1163	97	331	706	917	1126	1327	56	297-8
Pecos & Northern Texas	553	....	....	57	....	473	....	....	....	1706	194	297-8
Pennsylvania *Co.*	477	665	938	1124	137	298	517	917	1126	1327	56	260
Pennsylvania *R. R.*	477	665	938	1124	137	298	517	917	1126	1327	56	260
Peoria & Eastern	477	756	1020	1277	179	365	808	1011	1183	1440	98-9	297-8
Pere Marquette	477	665	938	1124	137	298	706	917	1126	1327	56	260
Philadelphia & Reading	594	705	980	1277	97	331	706	962	1183	1440	98-9	*
Philadelphia, Baltimore & Washington	477	665	938	1124	137	331	517	917	1126	1440	56	260
Pittsburgh & Lake Erie	477	756	1020	1201	179	365	808	1011	1183	1440	56	297-8
Pittsburgh, Cincinnati, Chicago & St. Louis	477	665	938	1124	137	298	517	917	1126	1327	56	297-8
Pittsburgh, Shawmut & Northern	553	806	1092	1277	....	473	874	....	....	....	....	352
Port Reading	....	....	....	....	....	....	....	....	....	....	....	*
Richmond, Fredericksburg & Potomac	553	....	....	57	....	473	....	....	....	....	....	352
Rutland	477	756	1020	1277	179	365	808	1011	1183	1440	98-9	260
St. Joseph & Grand Island	553	806	1092	1277	137	365	874	1081	1292	1706	194	297-8
St. Louis & San Francisco	553	806	980	1163	137	331	517	917	1183	1440	194	352
St. Louis, Brownsville & Mexico	553	806	1092	1277	137	365	808	1011	1183	1440	98-9	297-8
St. Louis, Iron Mtn. & Southern	....	....	....	1201	253	428	517	1081	1183	1706	98-9	*
St. Louis Merchants Bridge Terminal	553	....	....	....	....	....	....	....	....	....	....	352
St. Louis, San Francisco & Texas	....	....	....	57	....	473	....	....	....	....	....	297-8
St. Louis Southwestern	477	705	980	1163	97	331	808	962	1183	1440	98-9	297-8
St. Louis Southwestern of Texas	553	705	980	1163	97	331	808	962	1183	1440	98-9	260
San Antonio & Aransas Pass	594	756	1020	57	179	428	706	1011	1292	1440	194	*
San Pedro, Los Angeles & Salt Lake	553	756	980	1201	97	428	706	962	1183	1440	98-9	352
Santa Fe, Prescott & Phoenix	553	756	1092	1277	253	365	874	1011	1292	1706	194	297-8
Seaboard Air Line	594	806	980	1163	97	298	517	962	1183	1440	194	352
Southern	477	705	938	1124	97	298	517	917	1126	1327	56	260
Southern in Mississippi	....	....	....	57	....	365	....	....	....	....	....	352
Southern Indiana	553	806	1092	1277	....	473	....	....	....	....	....	....
Southern Kansas of Texas	553	....	....	57	....	473	....	....	....	1706	194	297-8
Southern Pacific Co	553	705	980	1201	97	331	706	962	1183	1327	98-9	352
Spokane, Portland & Seattle	....	806	1092	1277	253	428	808	1011	1183	1440	98-9	*
Syracuse, Binghamton & New York	....	....	....	....	....	....	....	....	....	....	....	297-8
Sunset	553	....	....	....	....	....	....	....	....	....	....	297-8
Tennessee Central	477	756	1092	1277	253	365	874	1081	1292	1706	194	297-8
Terminal R. R. Assn. of St. Louis	553	....	....	....	....	....	....	....	....	....	....	352
Texas & New Orleans	553	756	1020	1201	137	365	808	1011	1292	1440	98-9	297-8
Texas & Pacific	477	705	938	1163	97	331	706	962	1183	1327	56	297-8
Toledo & Ohio Central	477	756	1020	1163	253	365	808	1011	1183	1440	98-9	297-8
Toledo, Peoria & Western	553	....	....	57	....	473	....	....	....	....	....	*
Toledo, St. Louis & Western	....	806	1020	57	179	365	808	1011	1183	1440	98-9	352
Trinity & Brazos Valley	....	806	1092	1201	179	428	808	1081	1292	1706	194	297-8
Ulster & Delaware	594	....	....	57	....	....	....	....	....	....	....	*
Union R. R. of Baltimore	553	....	....	....	....	....	....	....	....	....	....	297-8
Union R. R. of Pittsburgh	553	....	....	....	....	....	....	....	....	....	....	297-8
Union Pacific	553	665	938	1124	97	298	517	917	1126	1327	98-9	297-8
Vandalia	477	665	938	1124	137	331	706	962	1126	1440	98-9	297-8
Vicksburg, Shreveport & Pacific	477	756	1092	1277	253	428	874	1081	1292	....	194	297-8
Virginia & Southwestern	477	....	....	57	....	473	....	....	....	....	194	297-8
Virginian	477	665	1020	1163	137	365	808	1011	1183	1440	98-9	260
Wabash	594	705	980	1201	179	331	517	962	1183	1440	98-9	297-8
Washington Southern	553	....	....	57	....	473	....	....	....	....	....	352
West Jersey & Seashore	477	665	1020	1163	137	365	874	1011	1183	1440	98-9	260
Western Maryland	594	806	1020	1201	137	428	874	1081	1292	1706	194	*
Western Ry. of Alabama	553	....	....	57	....	473	....	....	1292	....	....	*
Wheeling & Lake Erie	553	665	1020	1163	137	428	808	1011	1183	1440	98-9	297-8
Yazoo & Mississippi Valley	594	806	980	1201	97	331	517	962	1183	1706	98-9	352

*These reports are given elsewhere in this issue.

REVENUES AND EXPENSES OF RAILWAYS.

MONTH OF JUNE, 1911. (SEE ALSO ISSUES OF AUGUST 4, 11 AND 18.)

Name of road.	Mileage operated at end of period.	Operating revenues			Operating expenses						Net operating revenue (or deficit).	Outside operations, net.	Taxes.	Operating income (or loss).	Increase (or decr.) comp. with last year.
		Freight.	Passenger.	Total, inc. misc.	Maintenance: Way and structures.	Maintenance: Of equipment.	Traffic.	Transportation.	General.	Total.					
Ann Arbor	291	$101,086	$46,751	$158,986	$19,620	$18,332	$4,546	$53,055	$7,246	$102,800	$55,286	—$2,069	$13,300	$39,917	$28,509
Atlantic City	166	66,331	132,614	207,904	35,994	19,067	3,160	90,590	1,041	149,852	58,052	—4,101	3,072	50,879	5,602
Atlanta & West Point	93	43,229	37,725	90,614	11,799	18,272	4,945	28,407	5,022	68,445	22,169	113	8,519	13,763	2,656
Atlantic & St. Lawrence	166	72,630	26,616	109,784	57,996	19,873	3,703	43,682	4,543	129,815	—20,031	.....	cr. 13,072	—6,959	12,160
Belt Ry. Co. of Chicago	21	.....	.....	208,400	21,117	23,893	753	71,922	5,569	123,254	85,146	.....	5,500	79,646	17,938
Buffalo & Susquehanna *R. R.*	265	137,538	8,923	151,308	20,679	30,003	2,332	50,444	6,657	110,115	41,193	.....	2,600	38,593	.....
Buffalo & Susquehanna *Ry.*	91	52,109	9,020	63,334	6,397	31,016	751	22,636	2,489	63,290	44	32	1,400	—1,324	.....
Canadian Pacific Lines in Maine	233	33,719	15,733	55,375	31,376	14,010	6,042	35,196	3,395	90,019	—34,644	.....	27,895	—62,539	—38,347
Central of Georgia	1,915	510,745	295,604	889,825	127,992	165,065	37,752	305,429	37,878	674,116	215,709	7,474	57,227	165,956	70,979
Central of New Jersey	634[1]	1,686,697	413,923	2,239,868	247,664	344,717	31,192	597,749	57,363	1,278,685	961,183	31,400	cr. 186,718	1,179,301	711,634
Central Vermont	411	243,447	94,908	379,606	39,823	56,339	8,017	119,916	7,952	232,048	147,558	755	13,596	134,717	53,427
Chicago, Indianapolis & Louisville	616	344,712	129,858	526,493	69,216	78,077	17,050	182,960	18,889	366,192	160,301	.....	20,945	139,356	10,960
Detroit, Grand Haven & Milwaukee	190	104,148	49,819	180,085	16,855	21,483	7,300	82,486	12,720	141,044	39,041	—67	1,459	37,515	33,670
Georgia Southern & Florida	395	93,657	62,830	185,894	17,088	32,932	7,869	74,722	9,208	141,819	44,075	.....	9,157	34,918	17,791
Grand Trunk Western	347[2]	330,463	192,254	557,100	21,177	87,221	19,571	238,974	29,974	396,916	160,184	—744	30,951	128,489	31,279
Indianapolis Southern	179	59,496	19,319	82,349	20,803	14,261	2,296	35,632	1,755	74,747	7,602	.....	5,647	1,955	—13,176
Kansas City, Mexico & Orient	764[3]	90,924	27,578	127,427	25,981	36,368	8,891	72,734	8,521	152,495	—25,068	.....	6,750	—31,818	—3,274
Lehigh Valley	1,429	3,117,700	456,290	3,687,671	284,881	416,556	101,103	1,036,264	94,985	1,923,789	1,763,882	—21,640	78,577	1,663,665	333,812
Midland Valley	323	60,615	37,226	104,245	cr. 6,915	19,304	3,342	36,391	5,213	57,335	46,910	190	5,581	41,519	36,423
Minn., St. Paul & S. S. Marie System	3,769[4]	1,147,637	485,498	1,757,424	240,509	271,511	54,568	633,212	39,730	1,239,531	517,893	13,975	124,319	407,549	—293,590
Missouri Pacific	3,916[5]	1,330,432	419,774	1,953,892	987,254	521,527	80,200	1,211,836	184,508	2,985,325	—1,031,433	—4,931	73,508	—1,109,873	—1,519,835
Nevada Northern	165	115,010	12,634	130,767	80,975	13,933	749	19,453	4,083	119,193	11,574	.....	5,401	6,173	—79,627
New Orleans Great Northern	282	104,825	29,816	143,388	16,968	16,068	3,847	42,298	6,919	86,100	57,288	—124	2,000	55,164	6,036
New Orleans, Mobile & Chicago	404	108,326	25,378	138,441	22,035	12,282	2,443	36,983	7,237	80,980	57,461	.....	2,268	55,193	775
New Orleans, Texas & Mexico	264	69,837	14,451	91,450	18,066	11,711	3,545	39,542	3,860	76,724	14,726	.....	1,809	12,917	2,545
Northwestern Pacific	376	109,164	197,627	327,608	48,840	37,502	5,448	105,134	9,487	206,429	129,179	.....	15,000	106,179	—10,665
Philadelphia & Reading	1,022	2,925,561	586,992	3,690,337	493,040	597,178	48,752	1,151,855	64,623	2,355,448	1,334,889	38,021	185,914	1,186,996	35,408
Port Reading	21	79,840	.....	81,991	10,364	252	32	21,831	86	32,595	49,396	3,378	5,203	47,571	60
St. Louis. Iron Mountain & Southern	3,313[6]	1,481,810	526,126	2,170,887	626,117	431,593	74,687	1,015,616	96,324	2,244,337	—73,450	—7,804	127,291	—208,545	—890,170
San Antonio & Aransas Pass	727	209,058	93,685	322,744	119,376	cr. 11,329	4,859	118,906	9,621	241,433	81,311	.....	14,985	66,326	23,215
Spokane & Inland Empire	177	21,998	54,662	82,099	14,069	12,761	1,208	26,006	8,295	62,339	19,760	6,149	4,200	21,709	—28,485
Spokane, Portland & Seattle	550[7]	237,648	182,522	506,681	42,804	58,170	7,974	96,154	10,287	215,389	291,292	91	42,200	249,183	231,245
Toledo, Peoria & Western	247	64,751	34,307	111,223	19,524	18,494	2,758	39,068	3,411	83,256	27,967	.....	4,248	23,719	20,404
Ulster & Delaware	129	61,322	39,001	105,468	49,851	9,967	3,365	38,216	2,954	104,353	1,115	100	2,162	—947	—29,783
Western Maryland	543	501,670	80,158	606,951	94,854	78,923	12,106	198,587	11,839	396,219	210,732	2,940	21,000	192,672	—11,890
Western Ry. of Alabama	133	47,987	37,520	94,881	36,362	25,729	4,967	31,584	8,096	106,738	—11,857	—247	9,497	—21,602	—35,285
FISCAL YEAR ENDED JUNE 30, 1911.															
Ann Arbor	291	$1,323,943	$490,487	$1,934,616	$259,444	$245,415	$48,581	$666,734	$85,194	$1,305,368	$629,248	—$8,185	$167,827	$453,235	$74,852
Atlantic City	166	743,059	1,177,491	2,020,598	354,507	182,400	32,437	972,302	15,279	1,556,925	463,673	—59,164	80,072	324,437	74,086
Atlanta & West Point	93	632,219	467,290	1,208,212	149,867	211,680	58,989	356,951	55,575	833,062	375,150	2,132	59,338	317,944	61,723
Atlantic & St. Lawrence	166	939,048	298,929	1,372,654	360,070	251,152	49,015	692,953	40,943	1,394,133	—21,479	.....	79,904	—101,383	—336,308
Belt Ry. Co. of Chicago	21	.....	.....	2,634,891	209,497	307,588	5,909	1,050,183	73,637	1,646,814	988,077	.....	63,891	924,186	426,928
Buffalo & Susquehanna *R. R.*	265	1,538,332	99,130	1,702,657	308,692	327,681	21,258	621,594	68,179	1,347,404	355,253	.....	29,271	325,982	.....
Buffalo & Susquehanna *Ry.*	91	542,319	110,937	682,130	79,825	342,508	8,526	288,664	33,211	752,734	—70,604	—429	18,729	—89,762	.....
Canadian Pacific Lines in Maine	233	749,204	337,451	1,171,496	313,001	181,120	58,562	516,033	38,600	1,107,316	64,180	.....	82,895	—18,715	—60,213
Central of Georgia	1,915	8,308,919	3,484,389	12,907,788	1,745,023	2,182,967	397,613	4,199,247	495,243	9,020,093	3,887,695	77,856	560,125	3,405,426	298,428
Central of New Jersey	633[1]	18,742,450	4,733,074	24,799,234	2,498,265	3,733,032	364,132	7,103,640	499,926	14,198,995	10,600,239	75,286	769,681	9,905,844	590,912
Central Vermont	411	2,654,911	1,045,302	4,006,433	453,504	606,519	86,254	1,777,086	104,309	3,027,672	978,761	6,611	138,213	847,159	20,655
Chicago, Indianapolis & Louisville	616	4,054,115	1,576,659	6,186,878	799,007	878,722	201,556	2,193,184	184,693	4,257,162	1,929,716	.....	268,445	1,661,271	—142,181
Detroit, Grand Haven & Milwaukee	190	1,217,917	547,309	2,046,680	264,942	282,809	78,863	1,043,941	62,711	1,733,266	313,414	—809	34,559	278,046	—171,196
Georgia Southern & Florida	395	1,291,203	786,133	2,399,397	253,846	478,274	74,785	914,571	107,617	1,829,093	570,304	.....	112,459	457,845	35,863
Grand Trunk Western	347[2]	4,013,063	1,919,784	6,339,112	654,601	951,232	221,318	2,739,622	173,077	4,739,850	1,599,262	—14,360	379,621	1,205,281	—249,714
Indianapolis Southern	179	821,787	243,858	1,111,705	227,229	177,969	29,978	444,696	21,757	901,679	210,076	.....	49,559	160,517	—57,660
Kansas City, Mexico & Orient	764[3]	1,328,194	410,633	1,848,479	377,804	395,813	96,284	879,727	95,579	1,845,207	3,272	.....	66,361	—66,089	—98,365
Lehigh Valley	1,429	31,842,825	4,548,029	37,687,402	3,620,176	6,003,287	1,010,675	11,979,278	793,902	23,407,318	14,280,084	—320,170	1,145,477	12,814,437	—415,718
Midland Valley	323	857,760	418,458	1,352,607	227,741	210,422	29,078	404,387	80,831	952,459	400,148	27,283	65,812	361,619	9,767
Minneapolis, St. Paul & S. S. Marie	3,769[4]	15,157,876	4,971,488	21,568,640	2,359,609	3,159,184	543,463	8,140,994	496,560	14,699,810	6,868,830	105,409	1,246,074	5,728,165	—3,318,142
Missouri Pacific	3,916[5]	17,246,925	4,700,352	24,208,771	4,574,765	4,272,038	727,085	12,213,847	961,145	22,748,880	1,459,891	—35,528	978,008	446,355	.....
Nevada Northern	165	1,286,649	138,690	1,468,005	162,640	167,673	4,725	311,299	43,291	689,628	778,377	.....	58,908	719,469	—173,603
New Orleans Great Northern	282	1,196,438	369,220	1,698,723	245,560	231,195	36,848	495,078	68,024	1,076,705	622,018	—1,056	23,511	597,451	21,887
New Orleans, Mobile & Chicago	404	1,375,609	336,047	1,826,135	254,193	151,539	33,730	544,377	96,618	1,080,447	745,688	.....	50,319	695,369	95,402
New Orleans, Texas & Mexico	264	907,813	172,905	1,168,715	206,805	130,251	42,650	503,877	88,992	972,575	196,140	.....	8,655	187,485	.....
Northwestern Pacific	376	1,358,562	1,758,343	3,369,859	591,525	502,244	38,076	1,254,986	111,228	2,498,059	871,800	.....	137,700	734,100	—112,069
Philadelphia & Reading	1,022	35,380,947	6,995,801	44,365,442	4,072,261	8,095,783	511,252	14,181,314	815,232	27,675,842	16,689,602	325,794	1,112,002	15,903,392	—1,062,890
Port Reading	21	1,243,289	.....	1,264,243	90,309	2,154	379	344,146	1,464	438,451	825,792	64,924	43,703	847,013	81,558
St. Louis, Iron Mountain & Southern	3,313[6]	20,382,287	6,217,498	28,567,820	4,409,367	4,011,483	683,695	10,531,561	944,950	20,581,056	7,986,764	—50,554	1,005,780	6,930,430	—1,420,874
San Antonio & Aransas Pass	727	2,836,115	1,089,514	4,164,819	902,524	521,448	61,321	1,571,530	123,738	3,180,561	984,258	.....	132,985	851,273	—108,539
Spokane & Inland Empire	177	399,980	620,882	1,080,045	169,355	119,161	22,587	339,528	86,247	736,878	343,167	122,282	50,400	415,049	—211,397
Spokane, Portland & Seattle	550[7]	3,217,045	1,297,695	4,819,464	545,495	377,733	62,030	1,189,859	147,020	2,322,127	2,497,337	—3,770	429,400	2,064,167	1,183,482
Toledo, Peoria & Western	247	778,364	440,858	1,293,562	224,147	257,837	28,163	487,583	38,746	1,036,475	257,087	.....	57,149	199,938	13,266
Ulster & Delaware	129	713,775	355,379	1,122,929	177,719	144,925	20,558	460,536	30,301	834,039	288,890	783	38,462	251,211	—69,813
Western Maryland	543	5,938,425	963,628	7,200,933	857,880	856,038	109,702	2,457,000	159,607	4,440,227	2,760,706	576	240,000	2,521,282	.....
Western Ry. of Alabama	133	724,640	460,334	1,293,271	274,397	237,136	61,405	360,870	78,879	1,012,687	280,584	—2,217	57,228	221,139	—56,448

Mileage operated on June 30, 1910—[1] 667 miles; [2] 335 miles; [3] 740 miles; [4] 3,532 miles; [5] 3,883 miles; [6] 3,287 miles; [7] 429 miles; — indicates Deficits, Losses and Decreases.

NOTE.—This table covers all the June reports delayed in filing because of annual closing and checking of accounts.

INTERSTATE COMMERCE COMMISSION.

The commission has declined to suspend the proposed reductions in rail and lake rates on flour from Minneapolis transfer points to New York via Duluth, and has refused to permit the eastern roads to withdraw their concurrences in the reduced rate.

The commission has assigned October 4 as the date for a hearing in the proposed advance in the minimum rate for a single shipment of freight. This advice was proposed by the railways after the commission had held that railways could not refuse to accept as a single shipment combined packages of freight belonging to various consignors, but shipped by one consignor to one consignee.

STATE COMMISSIONS.

The Railroad Commission of Wisconsin has orderd the Chicago, Milwaukee & St. Paul and the Minneapolis, St. Paul & Sault Ste. Marie to put in effect on sash, doors and blinds from Wausau to Soo Line stations north of Marshfield and west of Abbotsford joint class rates which are slightly higher than single line distance rates, but based largely on these rates. The carload rates are one cent higher than the carload rates on lumber as fixed by the commission.

The Board of Public Utility Commissioners of New Jersey has disapproved of the plans of the Pennsylvania Railroad for its station at Summit avenue, Jersey City. The board finds that the station as planned will not have elevators and other conveniences, such as the protection of platforms their full length, and finds that the defense of the railway company, that the station is a temporary one is not a good defense, because there is no evidence that the company ever intends to build any other kind of a station.

J. Heron Crosman, a commuter on the New York, New Haven & Hartford, has filed a complaint with the New York Public Service Commission, second district (state), asking that that railway be required to refund full amount of conductor's receipt for cash fare which is collected from commuters who have forgotten their commutation ticket. The present practice of the company is to charge five cents in excess of the cash fare and give to the rider a cash receipt redeemable for five cents. Mr. Crosman asks that the ticket agents refund the full amount paid by commuter upon receipt of the conductor's receipt and the exchange of coupon from the commutation ticket.

The Board of Public Utility Commissioners of New Jersey has ordered the New York & Long Branch to restore a bridge over its right of way in substantially the same condition as it existed before its removal. The testimony of F. E. Degraw, a resident of South Amboy for over 50 years, showed that the road now called Main street, which was carried over the railway bridge, "extended down to the hotel beyond where the railway now is." The commission says that after the removal of the bridge, an additional aggravation was perpetrated by the raising at the end of Main street, by the Pennsylvania Railroad, of a high board barrier fence bearing the sign "This street closed for repairs." This it is declared "only emphasizes the utterly indefensible character of this invasion of the right of the city of South Amboy in this matter."

The city of Lackawanna, Erie county, New York, has six railways, but only one station; and this station is a building only 21 ft. x 15 ft. in size; and the mayor and citizens have asked the State Public Service Commission to require the railways to treat them a little better. Lackawanna is best known to railway men as West Seneca, 4.4 miles out of Buffalo on the Lake Shore & Michigan Southern. The Lake Shore maintains the station referred to, and the other roads apparently ignore the town, although, according to the complaint sent to the commission, the population now numbers 15,000. Another grievance is that the road has refused to change the name of the station, though Lackawanna is now an incorporated city. The people have for a number of years tried to get all of the roads to join in a union station, but nothing has been accomplished. Another town, with the same number of inhabitants, Watervliet, complains to the commission that it has no telegraph office, though the Western Union enjoys valuable rights along the ways of the city.

Charles Clement Elwell has been appointed engineer of the Connecticut Board of Public Utilities, as heretofore announced in these columns. Mr. Elwell was born in 1855 in Maine and graduated from the University of Maine with the degree of civil engineer. He began railway work when he was about 26 in the civil engineer's office of the New England Railroad, now part of the New York, New Haven & Hartford. Three years later he went to the Wilmington & Northern, now also part of the New Haven, on construction and maintenance work. Later he went to the Baltimore & Ohio, remaining with that company until 1893. From 1893 to 1895 he was roadmaster on the New York division of the New York, New Haven & Hartford, and was then made superintendent first of the Norwich & Worcester, then of Air Line & Northampton, and later of the Shore Line division. Mr. Elwell has been for the past three years engineer of the Connecticut Company, the New York & Stamford and the Westchester Street Railways Company. The Connecticut Company is the New Haven's subsidiary which controls its street railway properties in Connecticut. Mr. Elwell was one of the eight delegates that were sent to Europe by the New Haven in 1895 to study railway methods abroad. He is a member of the American Society of Civil Engineers.

COURT NEWS.

The supreme court of the state of Washington has affirmed the order of the state railway commission, directing the Seattle-Tacoma Interurban Railway to reduce passenger fares to certain non-competitive points.

FOREIGN RAILWAY NOTES.

The Dominican Central Railway, which formerly belonged to an American company, became by virtue of a contract made by the government in February, 1908, the property of the Republic. This road connects the two important cities of Puerto Plata and Santiago with an extension to Moca, and has a length of 60 miles, 28 of which run through broken and mountainous lands.

Costa Rica has in actual operation 427 miles of railway, including branches and sidings, all of 3 ft. 6 in. gage. Of this mileage 69 miles are the property of the government, 141 belong to the Northern Railway Company, and 217 to the Costa Rica Railway. The Costa Rica Railway is leased to the Northern Railway Company, so that the whole system of some 358 miles, having its focal point at Port Limon, is under one general management. Both these roads are well constructed with steel and iron bridges, suitable stations, and side tracks, and are maintained in good condition. Various branch lines have been extended up and down the coast for the service of the banana industry. The main line leaves Port Limon, passing through Matina, Siquirres, Turrialba, and Cartage, reaching San Jose, the capital, at a distance of 103 miles. The system is continued to Alahuela, 14 miles north of San Jose.

The railways in Salvador during 1910 comprised 97 miles, all of narrow gage. The longest railway in the country runs from the port of Acajutla on the Pacific coast to the city of San Salvador, the capital, a distance of 65 miles. This line, which has 14 stations from terminal to terminal, is the most important railway of the nation. A branch line, 25 miles long, connects Santa Ana, the second city of the republic, with Sitio del Niño. A short railway runs from the city of San Salvador to Santa Tecla, a distance of 11 miles. A project for the extension of this line from Santa Tecla to the port of La Libertad is now being considered The operation of the railway from La Ceiba to Ateos, a distance of 20 miles, has been temporarily abandoned. Of the branch line between San Miguel and La Union, 6 miles were completed at the end of 1910. At the end of May, 1911, there were completed 16 miles, and the work is being pushed rapidly on this line, which will have a total length of 38 miles.

Railway Officers.

ELECTIONS AND APPOINTMENTS.

Executive, Financial and Legal Officers.

H. I. Miller has been elected vice-president, in executive charge, of the Mexico North Western, with headquarters at New York City. Mr. Miller is also vice-president of the Missouri Pacific. A portrait of Mr. Miller and a sketch of his railway career were published in the *Railway Age Gazette* of June 23, 1911, page 1669.

J. E. Dalrymple, assistant freight traffic manager of the Grand Trunk Pacific, at Winnipeg, Man., has been elected vice-president, in charge of traffic, of the Grand Trunk, with office at Montreal, Que. John Pullen, assistant freight traffic manager of the Grand Trunk, at Montreal, has been appointed vice-president and general manager of the Canadian Express Company.

Operating Officers.

Henry Martin, superintendent of the International & Great Northern under the receivership, has been appointed general manager, with office at Houston, Tex.

H. C. Robinson, superintendent of the Southern division of the Boston & Maine, at Boston, Mass., has had his authority extended over the Concord division, which is added to the Southern division, effective, October 2.

W. M. Bacon, superintendent of the Colorado & Southern at Denver, Colo., has been appointed superintendent of the Salt Lake division of the Denver & Rio Grande, with office at Salt Lake City, Utah, succeeding S. E. Burkhead, resigned.

H. W. Stanley, general superintendent of transportation of the Seaboard Air Line, at Portsmouth, Va., has been appointed assistant general manager in charge of transportation, with office at Portsmouth, and his former position has been abolished. J. M. Shea, superintendent of the Third division, at Atlanta, Ga., has been appointed general superintendent, with office at Portsmouth, Va.

John H. Doggrell, whose appointment as superintendent of freight loss and damage claims of the St. Louis & San Francisco, with office at Springfield, Mo., has been announced in these columns, was born August 6, 1876, at Ellis, Kan. He received a public school education and began railway work in November, 1894, as an office boy in the operating department of the Kansas City, Memphis & Birmingham, now part of the St. Louis & San Francisco, and was later a clerk in the office of the car service agent of the Kansas City, Ft. Scott & Memphis at Kansas City. In 1901, when the latter road was consolidated with the St. Louis & San Francisco, he was transferred to Springfield, where he was employed in the office of the superintendent of transportation, and in August, 1902, he was appointed to a position in the office of the superintendent of car service. He was appointed chief clerk in that department in October, 1903, and in June, 1907, was promoted to car accountant, which position he held until the time of his appointment to the new office of superintendent of freight loss and damage claims.

J. H. Doggrell.

A. E. Boughner, superintendent of the Missouri, Kansas & Texas at Sedalia, Mo., has been appointed superintendent of transportation, with office at Denison, Tex., succeeding E. J. Lampert, resigned. W. E. Williams, superintendent at McAlester, Okla., has been transferred to Sedalia, succeeding Mr. Boughner, and K. A. Easley, assistant superintendent at Parsons, Kan., succeeds Mr. Williams.

John R. Jones, whose appointment as division superintendent of the International & Great Northern, with office at San Antonio, Tex., has been announced in these columns, was born April 17, 1859, in Monroe county, Missouri. He attended the common schools until he was 14, and began railway work with the Missouri, Kansas & Texas in September, 1886, as a switchman. He was later a brakeman and then a conductor on a freight train for almost three years. In April, 1892, he went with the International & Great Northern as a freight brakeman, was made conductor in 1896, and in April, 1907, was appointed trainmaster, from which position he has now been promoted to superintendent, with office at San Antonio.

Traffic Officers.

R. L. Thompson, district passenger agent of the Canadian Pacific, at Toronto, Ont., has resigned.

C. H. Williams has been appointed traveling freight and passenger agent of the Gulf & Ship Island, with office at Gulfport, Miss.

W. D. Jones, district passenger agent of the Chicago Great Western, with office at Pittsburgh, Pa., has resigned to accept service with another company.

C. E. Dewey, general freight agent of the Grand Trunk Pacific, at Winnipeg, Man., has been appointed assistant freight traffic manager, with office at Winnipeg, succeeding J. E. Dalrymple, promoted.

W. F. Mundee, commercial agent of the Seaboard Air Line, at Tampa, Fla., has been appointed commercial agent, at Jacksonville, succeeding T. P. Toland, who in turn succeeds Mr. Mundee as commercial agent, at Tampa.

George C. Whitney, soliciting freight agent of the Queen & Crescent Route at Dallas, Tex., has been appointed traveling freight agent, with office at Dallas, succeeding A. C. Valentine, resigned to accept service with another company.

W. G. Trufant, commercial agent of the International & Great Northern and the Texas & Pacific in New York City, has been appointed general eastern traffic agent, with office in New York City, succeeding George D. Hunter, promoted.

W. S. Napier, assistant general baggage agent of the Galveston, Harrisburg & San Antonio, the Houston & Texas Central, the Houston East & West Texas and the Houston & Shreveport at Houston, Tex., has been appointed general baggage agent, with headquarters at Houston, succeeding W. W. Monroe, retired under the pension system.

George W. Squiggins, who has been appointed general passenger agent of the Baltimore & Ohio, with office at Baltimore, Md., entered the service of the Baltimore & Ohio in November, 1887, as yard clerk at Bellaire, Ohio. The following year he was appointed assistant ticket agent at the same place, and in 1889 was transferred to Wheeling in the same capacity. He was again transferred in 1891 to Pittsburgh, and in 1896 was promoted to city passenger agent at Pittsburgh. He was later appointed passenger and ticket agent at Cleveland, Ohio, and in 1902 was made traveling passenger agent. In 1905 he was appointed city passenger agent at Baltimore, and on August 1, 1909, was promoted to district passenger agent. Mr. Squiggins was again promoted on February 1, 1910, to assistant general passenger agent, which position he held at the time of his recent appointment as above noted.

Engineering and Rolling Stock Officers.

H. Y. Harris, general foreman of the Tampa Northern, at Tampa, Fla., has been appointed master mechanic, with office at Tampa.

B. C. Martin, resident engineer of the New York Central & Hudson River, at Watertown, N. Y., has been transferred to Utica.

Frank A. De Wolf has been appointed acting shop superintendent of the United Railways of Havana, with headquarters at Havana, Cuba.

E. Collings, chief carpenter of the Chicago, Milwaukee & St. Paul at Aberdeen, S. D., has been appointed chief carpenter of the Chicago, Milwaukee & Puget Sound, with headquarters at Malden, Wash.

D. N. Hooker has been appointed chief engineer of the Wichita Falls Route, with office at Wichita Falls, Tex., succeeding R. A. Thompson, resigned to go with the California Railway Commission as engineer.

D. T. Williams, mechanical engineer of the Philadelphia & Reading, will report direct to H. D. Taylor, superintendent of motive power and rolling equipment, at Reading, Pa., and the position of superintendent of power house at the Reading terminal has been abolished.

M. J. McCarthy, superintendent of shops of the Cleveland, Cincinnati, Chicago & St. Louis, the Peoria & Eastern and the Cincinnati Northern, at Beech Grove, Ind., has been appointed assistant superintendent of motive power, with headquarters at Beech Grove, and R. J. Williams succeeds Mr. McCarthy.

Purchasing Officers.

George C. Smith has been appointed purchasing agent of the Union Pacific, with office at Omaha, Neb., succeeding J. W. Griffith, retired.

OBITUARY.

J. T. Walch, superintendent and master mechanic of the Corvallis & Eastern, Albany, Ore., died in that city on September 19.

Joseph N. Frazer, recently engaged in important railway construction in Bolivia, S. A., died at La Paz, Bolivia, in the latter part of August. Mr. Frazer was born in Maryland about 28 years ago, and graduated from Delaware College in 1903. He was with the Baltimore & Ohio for about two years, in the engineering department, working in Pennsylvania, Maryland and West Virginia. In 1905 he was made engineer for the commission to study the railways of the Bolivian government, and was afterward for two years chief engineer of the Andes Tin Company. He was then engaged in the mining business and in 1909 became a member of the firm of Yount & Frazer which built railway lines from Rio Mulati to Potosi and from Cruro to Cochabamba. He was a member of the American Society of Civil Engineers.

General Samuel C. Lawrence, formerly president of the Eastern Railroad, now a part of the Boston & Maine, died on September 24 at his home in Medford, Mass., at the age of 79. General Lawrence was educated at Harvard College, and in the civil war served in the army as colonel of the Fifth regiment of Massachusetts volunteers. In 1875 he became president of the Eastern Railroad, which was later leased to the Boston & Maine. He has been at various times director of a large number of railway companies, including the Atchison, Topeka & Santa Fe, and he was a director in several Boston & Maine properties at the time of his death.

The *Boston Transcript*, in its notice of General Lawrence's death says: "His activity in railway matters began in 1875, when the old Eastern Railroad seemed to be approaching financial shipwreck. He was chosen to the directorate and at once started a rigid investigation, which in the course of a few months disclosed the fact that the road was bankrupt. Instead of keeping silence, remaining absent from his post and endeavoring to save himself, he locked what were then apparently worthless certificates in his safe and laid bare every fact in the case and the stock declined from $85 to $3 a share. Then he was chosen president, paid $100,000 at the start to keep the wheels moving, supported the company's credit by the power of his wealth and will, and astonished everybody by the masterly manner in which he retrieved the fortunes of the wrecked road. In a few years the $3 stock rose to $150, through General Lawrence's integrity and persistency. Afterward, with James T. Furber, he started the Boston & Maine on its career of importance and prosperity. The merger of the Boston & Maine with the New York, New Haven & Hartford was bitterly opposed by General Lawrence as a director of the Boston & Maine. He believed that the merger was against public policy and would establish a monopoly that would hurt rather than help New England and the city of Boston. The fact that he held 10,000 shares of stock gave him control of the Boston & Maine directorate until the merger interests secured fifty-one per cent. of the stock and compelled his retirement from the directorate about a year ago."

Equipment and Supplies.

LOCOMOTIVE BUILDING.

THE BUFFALO, ROCHESTER & PITTSBURG is in the market for 15 locomotives.

THE NORFOLK SOUTHERN has ordered five 10-wheel locomotives from the Baldwin Locomotive Works.

THE SAN DIEGO, EL PASO & ST. LOUIS, Artesia, N. Mex., has ordered two 10-wheel locomotives from the Central Locomotive & Car Works.

THE CENTRAL RAILWAY OF BRAZIL has ordered 6 Mallet compound locomotives from the American Locomotive Company. The cylinders will be 20 in. and 32 in. x 26 in., the driving wheels 50½ in. in diameter, and the total weight in working order, 280,000 lbs.

THE EDWARDSBURG STARCH COMPANY, LTD., Cardinal, Ont., has ordered one 4-wheel saddle tank switcher from the Montreal Locomotive Works. The cylinders will be 13 in. x 18 in., the driving wheels 36 in. in diameter, and the total weight in working order, 56,000 lbs.

THE BUREAU OF MANUFACTURES is informed by an American consular officer that a business house in his district is interested in the purchase of locomotives. Further information may be obtained by writing to the Bureau of Manufactures, Washington, D. C., mentioning inquiry No. 7392.

THE ERIE, as mentioned in the *Railway Age Gazette* of August 18 has ordered 20 mikados from the Baldwin Locomotive Works, 15 mikados and 5 switchers from the American Locomotive Company, and 5 switchers from the Lima Locomotive Company. The general dimensions and special equipment of these locomotives are as follows:

	Mikado	*Switching*
Simple or compound	Simple	Simple
Weight on drivers	240,900 lbs.	148,540 lbs.
Total weight	305,000 lbs.	148,540 lbs.
Cylinders	28 in. x 32 in.	20 in. x 26 in.
Diameter of drivers	63 in.	50 in.
Type of boiler	Straight top	Straight top
Working steam pressure	170 lbs.	180 lbs.
Heating surface, tubes	4,020 sq. ft.	1,799 sq. ft.
Heating surface, firebox	210 sq. ft.	152 sq. ft.
Heating surface, total	4,230 sq. ft.	1,951 sq. ft.
Tubes, number	234 and 36	302
Tubes, outside diameter	2¼ in. and 5½ in.	2 in.
Tubes, length	21 ft.	11 ft. 6 in.
Firebox, type	Wide	Wide
Firebox, length	120 in.	114¼ in.
Firebox, width	84 in.	66 in.
Firebox, material and maker	Otis, steel	Worth Bros., steel
Grate area	70 sq. ft.	52.3 sq. ft.
Tank capacity	9,000 gal.	4,500 gal.
Coal capacity	16 tons	7 tons
Special Equipment.		
Axles	Carnegie	Otis
Bell ringer	Simplicity	Simplicity
Boiler lagging	Franklin	Franklin
Brakes	New York air brake	New York air brake
Brake beams	Simi Damascus	Damascus
Brake shoes	A. B. S. & Fdy. Co.	A. B. S. & Fdry. Co.
Couplers	Gould	National
Headlight	Dressel	Dressel
Injector	Hancock	Ohio
Journal bearings	Bronze Metal Co.	Bronze Metal Co.
Packing	U. S. King	U. S. King
Safety valve	Consolidated	Consolidated
Sanding device	Leach	Leach
Lubricators	Chicago	Chicago
Springs	Ry. Steel Spring	Ry. Steel Spring
Staying	Bethlehem, Rome	Bethlehem, Rome
Steam gages	Ashcroft	Ashcroft
Steam heating equipment	Ward with Leslie valve	.....
Superheater	Loco. Superheater Co.	.....
Tires	Latrobe	Latrobe
Tubes	Parkesburg iron	Pittsburg Steel Products Co.
Valve gear	Baker	Stephenson
Wheel centers	Cast steel	Cast steel

CAR BUILDING.

THE PITTSBURG & LAKE ERIE is in the market for 1,000 steel hopper cars.

THE BUFFALO, ROCHESTER & PITTSBURG is in the market for 15 passenger cars.

THE LOUISVILLE & NASHVILLE is buying steel underframes for 500 hopper and 500 box cars.

THE BUFFALO, ROCHESTER & PITTSBURG is in the market for 1,000 50-ton steel hopper cars.

THE GRAND TRUNK is in the market for ten 30-ft. and ten 40-ft. steel underframe flat cars.

THE BUFFALO, ROCHESTER & PITTSBURG is in the market for 1,100 steel underframes for reinforcing freight cars.

THE UNION REFRIGERATOR TRANSIT COMPANY, Milwaukee, has ordered 150 refrigerator cars from the American Car & Foundry Company, to be built at the plant at Madison, Ill.

THE SAN DIEGO, EL PASO & ST. LOUIS, a new road with offices at Artesia, N. Mex., has ordered 25 box, 10 gondola and 10 stock cars, one caboose, one combination car and two coaches, from the Central Locomotive & Car Works.

THE GRAND TRUNK, mentioned in the *Railway Age Gazette* of August 4 as being in the market for 25 steel underframe coaches and 25 express cars, is said to have ordered this equipment from the Pullman Company. These items are not confirmed.

THE BALTIMORE & OHIO, mentioned in the *Railway Age Gazette* of August 4 as being in the market for ten steel baggage cars and 10 steel postal cars, has ordered the baggage cars from the Barney & Smith Car Company, and the postal cars from the Pullman Company.

THE BUREAU OF MANUFACTURES is informed by an American consular officer that a business house in his district is interested in the purchase of freight and passenger cars. Further information may be obtained by writing to the Bureau of Manufactures, Washington, D. C., mentioning inquiry No. 7392.

THE ERIE, as mentioned in the *Railway Age Gazette* of August 18, has ordered 1,000 steel underframe box cars from the American Car & Foundry Company, and 1,000 steel hopper cars from the Standard Steel Car Company; and as mentioned September 15, has ordered ten 70-ft. through passenger cars from the Barney & Smith Car Company, 25 suburban coaches from the Pullman Company. It has ordered five combination suburban cars, instead of 10 through passenger cars as previously stated, from the Pullman Company. The box cars will have a capacity of 40 tons, and will weigh 35,970 lbs. The inside dimensions are: 30 ft. long; 8 ft. 6 in. wide, and 8 ft. 3 in. high, and the overall dimensions are 40 ft. long; 10 ft. wide, and 13 ft. 7 in. high. The body will be of steel frame, with wood sheathing, and the underframe will be of steel. The hopper cars will have a capacity of 110,000 lbs., and will weigh 39,400 lbs. The inside dimensions will be 30 ft. 6 in. long, and 9 ft. 5 in. wide; the overall dimensions will be: 34 ft. long, 9 ft. 6 in. wide, and 10 ft. 6 in. high. The special equipment of the box and hopper cars will be as follows:

Bolsters, body	Simplex
Brakes	New York
Brake beams	Simplex and Damascus
Brake shoes	Am. Brake Shoe & F'dry
Brasses	Bronze Metal Co.
Couplers	Gould
Doors (hopper cars)	Triple hopper
Door fastenings (hopper cars)	Enterprise
Draft gear (hopper cars)	Miner
Draft gear (box cars)	Sessions
Dust guards	Basswood
Journal boxes	Franklin
Roofs (box cars)	Improved Winslow inside
Side bearings	Malleable iron
Springs	Ry. Steel Spring Co.
Trucks (hopper cars)	Andrews cast steel side frames
Trucks (box cars)	Cast steel frames
Wheels	Cast iron

The passenger cars will have a capacity of 80 persons, and will weigh 112,000 lbs. The overall dimensions will be: 78 ft. 3 in. long; 10 ft. wide, and 14 ft. 5 in. high. The bodies will be of wood and the underframes of steel. The suburban coaches will have a capacity of 72 persons. Their overall dimensions will be: 66 ft. 9 in. long; 10 ft. wide, and 14 ft. 5 in. high. The bodies will be made of wood, and the underframes of steel. The capacity of the combination cars will be 50 persons, and their weight will be 92,000 lbs. The overall dimensions are: 66 ft. 9 in. long; 10 ft. wide, and 14 ft. 5 in. high. The bodies will be of wood and the underframes of steel. The special equipment of these cars will be as follows:

Bolsters, body	Commonwealth
Brakes	Westinghouse
Brake beams	Am. Steel F'dry, Vulcan
Brake shoes	Am. Brake Shoe & F'dry
Brasses	Bronze Metal Co.
Couplers	Janney 3 Stem
Draft gear	Westinghouse
Dust guards	Basswood
Heating system	Ward
Journal boxes	Franklin
Lighting system	Wilson storage battery
Roofs	Canvas
Side bearings	Malleable iron
Springs	Ry. Steel Spring Co.
Trucks	Commonwealth, cast steel

IRON AND STEEL.

THE CANADIAN PACIFIC has ordered 1,200 tons of rails from the Illinois Steel Company.

THE NORFOLK & WESTERN is making inquiries for 30,000 tons of standard rails for 1912 delivery.

THE PENNSYLVANIA is in the market for 500 tons of bridge steel for the bridge over the Schuylkill river, near Philadelphia.

THE MONONGAHELA has ordered 2,000 tons of bridge steel from the American Bridge Company for the bridge over the Monongahela river.

THE CENTRAL RAILWAY OF NEW JERSEY is in the market for 10,000 tons of bridge material for two large bridges to be built over the Hackensack and Passaic rivers.

THE CHICAGO, MILWAUKEE & ST. PAUL has divided an order for 4,000 tons of bridge steel between the Minneapolis Steel & Machinery Company and the Milwaukee Bridge Company.

THE CHICAGO, BURLINGTON & QUINCY is in the market for 6,000 tons of structural steel for the 14-story office building to be built at Jackson boulevard and Clinton street, Chicago.

THE BALTIMORE & OHIO has ordered 300 tons of structural steel for the pier sheds at Staten Island from the Baltimore Bridge Company. This company is also in the market for 1,000 tons of structural steel for the new warehouse at Baltimore.

GENERAL CONDITIONS IN STEEL.—Steel prices continue low, due to the failure of consumers to respond, notwithstanding that the quotations are at the lowest level in several years. Few steel manufacturers anticipate any improvement in business in the last quarter of the current year, and a falling off in operations is looked for. The cut in the price of tubes is expected to be followed by a reduction in other classes of steel. Mills are looking for business at any price in order to keep their plants in operation. The Steel Corporation's Chicago district mills combined are operating at over 75 per cent. capacity, but the railway contracts for large orders do not improve.

FOREIGN RAILWAY NOTES.

Railway lines of standard gage, 4 ft. 8½ in. in operation in Uruguay at the end of 1910 amounted to 1,436 miles. There were reported last year 26 miles of narrow gage. This brings the length of the railways in Uruguay in 1910 to 1,472 miles. Of the standard gage lines 935 miles were subsidized.

The total length of railways in operation in Venezuela is 542 miles. The number of lines, according to latest information, is 12, with an invested capital of over $40,000,000. The only railway construction during 1910 was the extension of the Central Railway to Santa Lucia, about 3 miles.

The Chinese government has given its formal approval to a plan formulated by Tang Shao Yi for connecting the various commercial centers of the empire by railway and for bringing them into communication with the Siberian system on the north, the French lines in Indo-China on the south, and the Indian system terminating in Burmah on the west. It is proposed to connect with the Trans-Siberian near Lake Baikal and thus cut off about two days in the journey from Europe to Pekin and points south of it. The connection with the French lines to the south at Yunnan is entirely practicable if the Chinese would grant the necessary concessions, and British interests are ready to open connections with India and Burmah if the Chinese government will meet them half way.

Supply Trade News.

The Chicago & Alton has issued a list including about 125 machine tools which this company expects to buy in the near future.

P. H. Wilhelm has been appointed special railway representative of the Standard Leather Packing Company, Boston, Mass., with headquarters at Boston.

The Hanna Locomotive Stoker Company, Cincinnati, Ohio, has moved its offices from the South National Bank building to the Mercantile Library building.

E. C. McMillan, mechanical engineer of the American Bureau of Inspection & Tests, has been appointed manager of that concern, with office at Pittsburgh, succeeding George W. Greene, resigned.

The Mumford Molding Machine Company, Plainfield, N. J., has received an order from the American Brake Shoe & Foundry Company for a 24-in. cylinder jolting machine with a table 72 in. square.

The McKeen Motor Car Company, Omaha, Neb., has delivered a seventh standard 70-ft. all steel motor car to the Oregon-Washington Railroad & Navigation Company at North Yakima, Wash.

J. A. Sauer, formerly secretary to the vice-president of the T. H. Symmington Company, Baltimore, Md., has been appointed manager of its New York office, succeeding C. S. Arthur, resigned to go to the Wales Adding Machine Company, Atlanta, Ga.

W. A. Garrett, vice-president of the T. H. Symington Company, Baltimore, Md., has resigned to re-enter railway service. Mr. Garrett was chief executive officer of the Seaboard Air Line prior to November, 1909, when he left to go to the T. H. Symington Company.

The Isthmian Canal Commission is asking bids until November 20 on electric towing locomotives for all the canal locks. Sealed proposals in triplicate will be received at the office of the general purchasing officer of the Interstate Commerce Commission, Washington, D. C. (Circular No. 650.)

E. R. Euston, formerly vice-president of the Stoerer Foundry & Manufacturing Company, New York, which has been absorbed by, and will continue business under the name of, the Treadwell Engineering Company, Easton, Pa., will be located at its general sales office at Easton.

The Youngstown Sheet & Tube Company, Youngstown, Ohio, has ordered 7,500 tons of structural steel from the American Bridge Company for the extension to its plant at Youngstown. This company is also taking prices on machinery and equipment to be used in the new building. The entire cost of the building, machinery and equipment is estimated at $2,500,000.

The Bureau of Manufacturers, Washington, D. C., has received a communication from a railway officer in South America asking for sketches showing the type of car barges used on the Mississippi, Ohio and Missouri rivers. The work on his road involves interchange of freight with other lines which have different gages, and some method must be arranged to lift the cars so that the broad gage trucks may be substituted by narrow ones, or vice versa. Plans of the methods and the machinery to be used are wanted. The address of the inquirer may be had by writing to the Bureau of Manufacturers, mentioning inquiry No. 7353.

The Roberts & Schaefer Company, Chicago, has been awarded a contract by the Kentucky & Indiana Terminal, for designing and building a 500-ton fireproof Holmen counterbalanced bucket locomotive coaling station for installation at Louisville, Ky. This will be used jointly by the Baltimore & Ohio, the Southern and the Monon. The company has also been awarded a contract by the Vandalia for a fireproof, 500-ton Holmen counterbalanced type locomotive coaling station for installation at Rose Lake, Ill. This plant will be built throughout of reinforced concrete and steel, and will coal locomotives on the St. Louis division. The approximate contract price is $25,000.

The Kennicott Company, Chicago, has placed on the market a patented steel underframe for freight cars, to the design of which special attention has been given to combine strength with lightness and durability. This company is also manufacturing a patented all steel drop bottom and side dump car which has an automatic lock to prevent the doors from sagging and dropping the contents of the car along the road. Recent orders for equipment received by this company include the following: Ten all-steel 7,000-gal. Kennicott tank cars on 80,000-lb. capacity trucks for the Canadian Northern; seven 36-ft. steel underframes for the Fox River Dispatch; one 4,000-gal. sprinkling car for the Green Bay Traction Company, and two Davies patented all-steel 120,000-lb. capacity drop bottom cars for the Reiss Coal Company, Sheboygan, Wis.

The Miller Engineering Company, with which Charles H. Miller and A. C. Butterworth are associated, has recently been formed, with its principal offices in the Southern Trust building, Little Rock, Ark. The company is prepared to investigate, survey, report on and furnish estimates, designs and specifications for all classes of drainage, levee, railway, bridge, water supply, river protection work, and other municipal improvements and industrial propositions. Mr. Miller has been engaged in drainage, levee and river protection work for 19 years, having been with the Mississippi river valley and the United States government engineers for 13 years and with the Missouri-Pacific Iron Mountain system six years. Mr. Butterworth has done engineering work for ten years; most of his experience having been with the Wabash and the Missouri-Pacific.

C. J. Nash, who has been with the Westinghouse Air Brake Company, Pittsburgh, Pa., as special representative in the draft gear department for the past year, has resigned to engage in the railway supply business, where he will make a specialty of draft gear attachments. Mr. Nash began in the car business as chief draftsman of the old Lafayette Car Works, at Lafayette, Ind., and was later made general foreman at that place. He was mechanical engineer for the Pullman Company, Chicago, in charge of the contract car construction and the estimating department, for 16 years. During 1905 he was superintendent of the wooden car department and in charge of the steel passenger car department of the Standard Steel Car Company, Pittsburgh, Pa. He was then appointed chief mechanical engineer of the W. H. Miner Company, Chicago, which position he held until he went with the Westinghouse Air Brake Company.

TRADE PUBLICATIONS.

Electric Heaters.—The Gold Car Heating & Lighting Company, New York, has issued a catalogue illustrating its electric heaters for all kinds of service.

Motors.—The Crocker-Wheeler Company, Ampere, N. J., has issued a 16-page catalogue on induction motors, telling the advantages of the magnetic bridges, and how they add to the motors' operating characteristics and mechanical durability.

Circuit Breakers.—The General Electric Company, Schenectady, N. Y., has published bulletins No. 4837 to 4843, inclusive, on its circuit breakers. Bulletin No. 4837 gives full information on circuit breakers in general; bulletin No. 4838 describes circuit breakers of large capacity; bulletin No. 4839, circuit breakers of intermediate capacity; bulletin No. 4840, circuit breakers that are especially adapted to motor-driven tool applications; bulletin No. 4841, circuit breakers of small capacity; bulletin No. 4842, remote control circuit breakers; and bulletin No. 4843, magnetic blowout circuit breakers.

Drilling Machines and Tools.—The American Well Works, Aurora, Ill., has published catalog 120 on well-drilling machines, and catalog 121 on well-drilling tools to be used with the machines. Catalog 120 describes various types of well drills, such as the automatic trip churn drill, the hydraulic drill, the jetting drill, the diamond drill, etc., and gives the kind of work to which each drill is best adapted. It then illustrates and describes the different machines of these types. Catalog 121 is devoted to well drilling tools designed to be used with the well drilling machines described in catalog 120 or with any other machines of standard make.

Railway Construction.

New Incorporations, Surveys, Etc.

ARIZONA EASTERN.—See Southern Pacific.

ATCHISON, TOPEKA & SANTA FE.—An officer writes that contracts have been given to the H. Hauser Contracting Company, Los Angeles, Cal.; George W. West, San Bernardino; C. C. Welsh, Needles, and to the Sharp & Fellows Contracting Company, Los Angeles, for grading for second-track from Needles, Cal., west to Goffs, 31 miles. (September 8, p. 493.)

ATLANTIC, OKEECHOBEE & GULF.—An officer writes that the city of Tampa, Fla., has recently granted this company a franchise to enter the city. The city officials will buy at a cost of about $20,000 sufficient right-of-way for the tracks of the company, a part of the cost will be paid by the railway company. A contract has been given to the W. K. Palmer Company, engineers, Kansas City, Mo., for preliminary work on a section of 308 miles, and in about 10 weeks, or as soon as the maps, profiles and estimates are made, contracts will be given to contractors to build the line. It is expected that the work on the first section will be finished in 18 months. The projected route is from Tampa, on the west coast of Florida, southeast to Fort Lauderdale, on the east coast. Terminal facilities have been secured at both ends of the line, also a deepwater frontage at Tampa, where the company has 148 acres of water front. There are also to be some branch lines built in the territory near Tampa. The offices of the company are at Tampa. H. C. Ferriot, president; Hiram McElroy, chief engineer, and T. P. Bell, secretary. (September 22, p. 575.)

CALIFORNIA ROADS.—A line is to be built from Dumont, Cal., to the mining district of the Avawatz Gypsum Company, about 12 miles. H. H. Kerckhoff, Los Angeles, is interested.

CHICAGO, BURLINGTON & QUINCY.—A subway is to be built under the tracks of this company in Denver, Colo., at a cost of $13,000. The railway tracks will be raised to a minimum height of five ft. for a distance of several hundred yards on either side of the subway. The city of Denver and the county of Adams will pay part of the cost of the improvements.

CHICAGO, ROCK ISLAND & PACIFIC.—An officer writes that a contract has been given to the C. H. Sharp Contracting Company, Kansas City, Mo., to build from Malvern, Ark., to Kent, 55 miles. (June 9, p. 1333.)

CRESTON, WINTERSET & DES MOINES INTERURBAN.—Incorporation has been asked for in Iowa with $500,000 capital, and office at Creston, Iowa. The plans call for building a line northeast via Macksburg and Winterset to Des Moines, about 55 miles. R. Brown, president, Creston; C. E. Wilson, vice-president, Macksburg; M. E. Harris, second vice-president, Winterset; A. S. Lynn, secretary, Orient, and W. W. Walker, treasurer, Macksburg.

CUMBERLAND VALLEY.—A contract has been given to Sundstrom & Stratton, New York City, for revision work on the line through Chambersburg, Pa. (August 25, p. 390.)

ERIE RAILROAD.—An officer writes that this company has secured a large tract of land near Crown Point, Ind., to be used as a site for new terminals and freight yards, to have a capacity of 2,000 cars.

EUFAULA & CHATTAHOOCHEE VALLEY.—An officer writes that the company expects to begin grading work within the next 60 days. The first section to be built will be from Pittsview, Ala., to Eufaula, 21 miles. There will probably be two bridges on this section. It is expected that contracts for building additional sections between a point in Russell county and a point in Henry county will be let in the near future. J. P. Foy, president; A. H. Merrill, vice-president, and W. L. Wild, secretary and treasurer, Eufaula. (September 22, p. 575.)

EVANSVILLE, HENDERSON & OWENSBORO (Electric).—An officer writes that this company proposes to operate a line from Evansville, Ind., to Henderson, Ky., and for this purpose will electrify the Illinois Central's line which was abandoned for passenger traffic about seven years ago. This section of the Illinois Central between Evansville, Ind., and Hopkinsville, Ky., included a transfer across the Ohio river by means of incline and transfer boats. It was abandoned when an agreement was entered into with the Louisville & Nashville, by which the Illinois Central trains used the L. & N. between Henderson and Evansville, including the bridge over the Ohio river. That section of the Illinois Central has been maintained for switching service, but its river transfer was abandoned. The distance from the city limits of Evansville to the city limits of Henderson, by the I. C. is about six miles, exclusive of the river crossing, and an agreement has been entered into with the Evansville Railway Co. to permit the latter to electrify these tracks and run cars over them, connecting with the street railway tracks at the city limits at each point. The Evansville Railway Co. will install and operate a small passenger transfer boat at the river, but this will not be used by the I. C.

EVANSVILLE RAILWAY CO.—See Evansville, Henderson & Owensboro.

FLORIDA ROADS.—The Alger-Sullivan Lumber Company, Century, Fla., is planning to build a 25-mile extension of its logging road in Monroe and Conecuh counties, Ala., for which bids will be asked in October. The work involves handling about 8,000 cu. yds. a mile. Maximum grades will be 1.5 per cent.

ILLINOIS CENTRAL.—The report of this company for the year ended June 30, 1911, shows that during the year 128.46 miles of track were relaid with 90-lb. rail; 0.21 miles with 85-lb. rail, and 38.61 miles with 75-lb. rail, a total of 167.28 miles, and 12.22 miles of track were relaid with second-hand rail, replacing lighter sections. 85 new industrial tracks, aggregating 7.74 miles, and 63 new sidings, aggregating 8.05 miles, were added during the year. 81 miles of partially ballasted track were reballasted, this work involved widening the embankment preparatory to replacing the ballast. The company placed in operation during the year second-track between Jackson, Tenn., and Frogmoor, 1.96 miles; between Curve and Diversion, 1.3 miles, and work is 63 per cent. completed on 36.04 miles between Ponchatula, La., and Orleans Junction. Second-track is also being laid between Hawthorne, Ill., and Parkway, and it is expected that all this work will be finished during October. Work is now under way building third and fourth-tracks between Blue Island Junction, Ill., and Matteson, 13.1 miles, it is expected that this work will be finished in November. Work in connection with the enlargement of the yards and facilities at Centralia was begun in July and at Champaign on August 1. It is expected that the important additions under way at these places will furnish much needed yard facilities. See comment on the annual report of this company elsewhere in this issue.

See Evansville, Henderson & Owensboro.

INTERCOLONIAL RAILWAY.—An officer writes that the branch to be built from near Alba, N. S., to Baddeck, 22.7 miles, for which bids are wanted October 12, is to have maximum grades of 1 per cent. and maximum curvature of 7 deg. There will be one swing span bridge, 350 ft. long, another bridge of three spans, 110 ft. long, and a third bridge of three spans, 100 ft. long. In addition, there will be six spans, 30 to 40 ft. each on this branch. (September 22, p. 575.)

LEHIGH VALLEY.—The report of this company for the year ended June 30, 1911, shows that substantial progress has been made in the construction of the branch line from Ashmore, Pa. (formerly Lumberyard), to a connection with the main line at White Haven. This line is being built to shorten the distance from the coal fields, and to provide a route with lower grades and less curvature than the existing lines. In connection with this work, the line between Laurel Junction and Silver Brook Junction is being changed from single to double-track. It is expected that these improvements will be placed in operation within a few months. A branch from a connection with the main line near Glendon to the plateau south of Easton is under construction and nearing completion. Additional third and fourth-track work has been continued and the company now has 67.6 miles of third-track and 33.32 miles of fourth-track. An extension from Fullerton to Cementon, 3.72 miles, is completed, making a continuous four-track line of 19.61 miles through this congested section, and work is under way on a further extension

from Cementon to Treichler; 17.99 miles of company's sidings and 3.35 miles of industrial sidings were constructed during the year. West of Roselle Park a depression was eliminated by raising 4,000 ft. of the main line tracks a maximum of 6 ft. Work has been completed on a change in the alinement, eliminating a sharp reverse curve on the main line, and on the construction of additional yard facilities at South Bethlehem. A freight yard, to have a capacity of 400 cars is being constructed at Richards; west of Easton, and a new yard, with a capacity of 220 cars was constructed at Catasauqua, to provide facilities for interchange with other railways, and to compensate for sidings absorbed by third and fourth track extensions.

Liberty-White.—An officer writes that work is now under way on an extension from Ada, Pike county, Miss., to Tylertown, 15.6 miles, where connection will be made with the New Orleans Great Northern. The first two miles to Kaigler has been placed in operation. (June 9, p. 1334.)

Regarding the reports that an extension is to be built to timberlands at a point near Columbia, in Marion county, an officer writes that plans are not yet sufficiently advanced to give out any information.

Oregon Electric.—A contract has been given to McDougal & Guthrie, and a sub-contract has been given to Fuller & Bain, for building the extension from Salem, Ore., south to Albany, about 30 miles. This work is now under way. (September 22, p. 576.)

Oregon-Washington Railroad & Navigation Company.—An officer writes that grading work has been finished, but track laying has not yet been started on the line from a point west of Ayer station, Wash., on the existing line east along the south bank of the Snake river, thence north along Cow creek, passing east of Perry and Palouse Falls, thence via Ankeny to Marengo, 41 miles. The contractors for the grading and bridge work were: G. A. Carlson & Co. and W. L. Tribble, both of Spokane; Eschbach-Bruce Company, North Yakima; George Chew and Coughren-Boynton & Co., both of Spokane. The grading work averaged about 25,500 cu. yds. of solid rock, 8,250 cu. yds. of loose rock and 30,000 cu. yds. of earth a mile. Maximum grades are 6 per cent. and maximum curvature 3 deg. There are three steel bridges 4,870 ft. long and eight tunnels, having a total length of 6,470 ft. (May 19, p. 1187.)

San Antonio, Rockport & Mexican.—Financial arrangements have been made in London, Eng., it is said, to build this line. The terms of the agreement provides that bonuses amounting to $8,000 a mile must be secured from land owners and others along the proposed route. The plans call for a line from San Antonio, Tex., south to Brownsville, with a branch from a point about 125 miles south of San Antonio east to Rockport, on the Gulf coast, in all, about 350 miles. A. L. Matlock, San Antonio, is said to be interested. (September 15, p. 545.)

Scott City Northern.—An officer writes that it is undecided when this line will be extended. The road was opened for operation on August 1, from Winona, Kan., on the Union Pacific, south to Scott City, 52 miles, where connection is made with the Missouri Pacific, the Atchison, Topeka & Santa Fe and the Garden City, Gulf & Northern. The line is expected to find a traffic in grain and live stock. (March 3, p. 434.)

Southern Pacific.—According to press reports, this company is planning to start work on the proposed extension of the Arizona Eastern, which has been under consideration for a long time. The plans call for an extension of the Globe division, from Globe, Ariz., northeast through Arizona and western New Mexico to Durango, Colo.

Uintah Railway.—An officer writes that track laying is about finished on a 14-mile extension from Dragon, Utah, northwest, and the line is to be opened for service about October 15. The principal commodity to be carried is gilsonite, which is a crude form of ahphaltum. The line will also carry general business and mails. December 2, p. 1097.)

RAILWAY STRUCTURES.

Aberdeen, Wash.—Plans for a new union station to be built jointly by the Oregon-Washington Railroad & Navigation Company, the Northern Pacific and the Chicago, Milwaukee & Puget Sound, have been finished, it is said, and construction work will be started soon. The estimated cost of the passenger station is $40,000, and the freight house $15,000. The same plans will be used for the construction of stations at Hoquiam. (May 26, p. 1225.)

Alba, N. S.—See Intercolonial Railway under Railway Construction.

Bingham, Utah.—The Bingham & Garfield is building a station, it is said, near Carr Fork, at Bingham. The work includes putting up a cable railway to transport passengers and freight from the street level in the business district, to the station, which is located upon a hill at an elevation of 500 ft.

Centralia, Wash.—The city council of Centralia has passed an ordinance granting street vacations requested by the Oregon-Washington Railroad & Navigation Company, and the Northern Pacific, for the construction of the new passenger and freight stations, roundhouse and machine shops at Centralia. It is understood that the improvements will cost $750,000. (June 2, p. 1297.)

Cleveland, Ohio.—Contracts have been let and work has been started on a large ore handling plant for the Pennsylvania Company on the lake front, a short distance from the mouth of the Cuyahoga river, at Cleveland. It is expected that the plant will unload two large vessels a day, or from 25,000 to 30,000 tons. There will be four unloaders, which will be equipped with 17-ton buckets. Some 43 acres is now being reclaimed by filling in between the government harbor line and the shore, and this will provide a frontage on the lake of about 2,000 ft. The work includes the construction of a reinforced concrete dock, 1,000 ft. long; foundations for the ore handling machinery; a 15-ton ore bridge; a power house of 2,200 k. w. capacity; a hauling system for placing cars under the machines; a yard development for loaded and empty cars, and an undergrade crossing of the Lake Shore & Michigan Southern. Contracts have been given for the dock and concrete work to the Great Lakes Dredge & Dock Company; the steel unloaders are being furnished by the Wellman-Seaver-Morgan Company, Cleveland, and the embankments are being made by the railway company with its own forces.

Crown Point, Ind.—See Erie Railroad under Railway Construction.

Daytona, Fla.—The Florida East Coast contemplates making extensive improvements at Daytona.

Ft. Stockton, Tex.—The Kansas City, Mexico & Orient is preparing plans for a division terminal to include roundhouse and yards.

Galveston, Tex.—The Southern Pacific has let the contract to Wm. Pearson & Co., Houston, for building a reinforced concrete warehouse, 71 ft. x 1,000 ft., with tar and gravel roof, on Pier "B" at Galveston. The building will be divided into five compartments of 70 ft. x 200 ft. each, by fireproof brick walls. Excavation work for the foundations has already been started. The estimated cost is $65,000. (September 8, p. 494.)

Holly, Colo.—The Atchison, Topeka & Santa Fe will build a brick passenger station to cost $25,000.

Hoquiam, Wash.—See Aberdeen, Wash.

Keddie, Cal.—The Western Pacific is building an addition to its station and yards at Keddie.

Laurel, Miss.—The New Orleans, Mobile & Chicago has plans to build new repair shops and to remove the present turntable and install an 80 ft. table near the new shops.

London, Ont.—Permission has been granted the Canadian Pacific, it is said, to make improvements in London, at a cost of $70,000. The work includes building a two-story brick station, constructing a coaling plant with chutes and approaches, also a brick store building and a steel and cement water tank. A contract for the brick work has been given to John Hayman.

Long Beach, Cal.—The Pacific Electric has started work on the new station at Long Beach, to cost $10,000. (November 11, p. 944.)

Los Angeles, Cal.—A permit has been given to the Southern Pacific to make improvements and additions to its wharf at San Pedro harbor, at a cost of $10,000.

Louisville, Ky.—The Kentucky & Indiana Terminal Railway has let the contract for building a 500-ton concrete coaling station of the Holman type, and will probably build in the near

future a roundhouse and machine shop. This company has also started construction on a new freight yard, with a capacity of 2,500 cars. In addition to the above it is double tracking all of the main line, and has begun grade separation work at all street crossings between the Ohio river and Walnut street, a distance of about two miles.

MILAN, PA.—The report of the Lehigh Valley, for the year ended June 30, 1911, shows that work has been carried out during the year on the following structures: A combined freight and passenger station of hollow tile and stucco construction was built at Milan, and separate passenger and freight stations of similar construction at Cortland, N. Y. At South Bethlehem, Pa., a concrete freight house was built. New milk shipping stations were built at Erin, N. Y., and at Wilseyville. Additions were made to the freight station at Wilkesbarre, Pa., and to the office buildings at Easton and Oak Island Transfer, N. J., an additional platform, 810 ft. long, with necessary tracks, was constructed at Oak Island Transfer. A 16-stall concrete roundhouses was constructed at Coxton, Pa., and a concrete boiler house at South Easton. A steel bulkhead shed was erected at pier 34, New York, and extensive repairs were made to various bulkheads, sheds, piers and docks at New York and Jersey City, N. J., as well as to the cold storage and shipping trestles at the Pert Amboy and Tifft Farm, New York, terminals.

MOSCOW, IDAHO.—The Spokane & Inland Empire is making plans, it is said, for putting up a new station at Moscow.

NEW ORLEANS, LA.—The report of the Illinois Central for the year ended June 30, 1911, shows that the following improvement work was carried out during the year: A combined freight station, office building and warehouse of brick and reinforced construction and the necessary yard facilities, at New Orleans, was completed, and a number of other stations were rebuilt or enlarged during the year. A new coaling plant was built at Manchester, Iowa, to replace the structure destroyed by fire, and a new water station was installed at La Branch, La. New 85-ft. turntables were installed at Paducah, Ky., and at McComb, Miss., replacing 66-ft. tables. 3,693 lin. ft. of permanent bridges, and trestles were constructed, replacing timber and pile bridges, trestles and embankments; 722 lin. ft. of permanent bridges and trestles, and 34,792 lin. ft. of timber and pile bridges and trestles were rebuilt or replaced by embankments, and 1,003 lin. ft. of permanent stone culverts were constructed.

PECOS, TEX.—The Pecos Valley Southern will build an engine work shop 40 ft. x 100 ft. of reinforced concrete construction.

PITTSBURGH, PA.—An officer of the Pittsburgh & Lake Erie writes that improvements are now being carried out in front of the Pittsburgh terminal station. The work includes putting up a covering 40 ft. wide over Smithfield street. The clearance under the roof will be about 19 ft. 9 in. above the street. In addition, a subway is being constructed under Smithfield street for the use of passengers to pass under the street to a stairway on the opposite side from the station. W. F. Trimble & Sons Company has the contract for the overhead structure, and the McKelvy-Hine Company has the contract for the subway. The cost of the improvements will be about $50,000.

ROSEBURG, ORE.—The Southern Pacific has plans made for putting up a new station at Roseburg, to cost $22,000. Work on this improvement, it is said, will be started at once.

TERRE HAUTE, IND.—The Terre Haute, Indianapolis & Eastern is preparing plans for a brick and steel passenger station and office building which will probably be six stories high and cost about $100,000.

THE DALLES, ORE.—The Great Southern has started work on a new station at The Dalles, to replace the structure recently destroyed by fire. (August 11, p. 305.)

SHERBROOKE, QUE.—Bids are wanted by the Quebec Central, it is said, for putting up a concrete station, two stories high, at Sherbrooke, to cost $30,000.

WOONSOCKET, R. I.—The New York, New Haven & Hartford through the Eastern Construction Company, has filed an application for a building permit to put up two new freight houses on North Main street, Woonsocket. It is thought that this is a plan of the New Haven to delay the entrance of the Grand Trunk into Rhode Island.

Railway Financial News.

CHICAGO, INDIANAPOLIS & LOUISVILLE.—John R. Waterbury, president of the Manhattan Trust Company, New York, has been elected a director, succeeding William H. McDoel.

BOSTON & ALBANY.—The board of directors has been increased from nine to ten, and William K. Vanderbilt, Jr., assistant to the president of the New York Central & Hudson River, has been elected a director of the Boston & Albany.

DENVER, NORTHWESTERN & PACIFIC.—The *Denver Republican* says that the stockholders of this company will be asked at a meeting on October 14 to authorize an issue of $40,000,000 5 per cent. bonds and $8,000,000 6 per cent. income bonds, and to increase the capital stock from $20,000,000 to $40,000,000. It is said that a part of the new bond issue will be used to retire the $10,940,000 bonds outstanding. The paper quotes S. M. Perry, secretary and treasurer, as follows:

"The new stock and the new bonds, if authorized and issued, will not be placed upon the market all at once, as to do so would flood the market. After disposing of the present bonds and the floating debt, the portion of the new issue remaining will be disposed of from time to time as money is needed for construction, or for other purposes. This means that funds necessary for the construction of the line through to Salt Lake City, the building of the Orestod to Dotsero cutoff and the building of a road into the anthracite coal fields in Routt county will be forthcoming and that the vast empire of northwestern Colorado will be opened to development.

"This will not consume the entire bond and stock issues, by any means, but the directorate thought it wise to make one mortgage of the property and make certain of having sufficient money in sight before again beginning actual construction work, rather than be forced to re-finance the road at some future time and before the work is completed."

DETROIT, TOLEDO & IRONTON.—The protective committee of the bondholders of Detroit Southern, Ohio Southern division, first mortgage 4 per cent. bonds, J. N. Wallace, chairman, will accept further deposits of these bonds up to September 30, 1911, on the payment of an assessment of 1 per cent.

INTERNATIONAL & GREAT NORTHERN.—On September 22 the property of the International & Great Northern Railroad was deeded to the International & Great Northern Railway, the new company.

OLD COLONY RAILROAD.—The directors have authorized an issue of $500,000 additional stock, making the total stock outstanding $21,664,000. The proceeds of the sale are to be used to reimburse the New York, New Haven & Hartford for expenditures under its 99-year lease amounting to about $850,000.

WASHINGTON-VIRGINIA.—The directors have declared a dividend of 1½ per cent. on the common stock and on the preferred stock, payable November 1. The first dividend payments were made on March 15, 1911, and were 1½ per cent. on the preferred and 1 per cent. on the common.

FOREIGN RAILWAY NOTES.

Good progress is being made on the Goyaz Railway, Brazil, which is to run from Formiga, in Minas Geraes, up to and beyond the capital of Goyaz. At the close of 1910 the line had been completed to Bambuhy in that state.

The Samana and Santiago Railway, Dominican Republic, extends from Sanchez to La Vega, with a branch to Salcedo. Plans have been completed for the extension of this branch to Moca to connect with the Dominican Central Railway, and construction work is soon to be commenced. The total number of miles of this road now in operation is 73.

Concessions have been granted by the Argentine government for several lines in the north to be constructed toward the Chilean frontier. One of these will start from Salta, and run to Antofagasta by way of Huatiquina, work on which will begin in October, 1911; another commences at Tinogasta, in Catamarca; while a third will extend from Chilecito, in the province of La Rioja.

ANNUAL REPORTS

BROOKLYN RAPID TRANSIT CO.

REPORT OF THE BOARD OF DIRECTORS TO THE STOCKHOLDERS FOR YEAR ENDING JUNE 30, 1911.

85 CLINTON STREET,

BROOKLYN, N. Y., Sept. 18, 1911.

COMPARATIVE STATEMENT OF THE RESULTS OF THE OPERATIONS OF THE BROOKLYN RAPID TRANSIT SYSTEM FOR YEARS ENDING JUNE 30, 1911 AND 1910.

	1911.	1910.	Increase or Decrease.
Gross Earnings from Operation..	$21,986,543.01	20,979,514.58	+1,007,028.43
Operating Expenses	12,166,367.03	11,737,110.76	+ 429,256.27
Net Earnings from Operation	9,820,175.98	9,242,403.82	+ 577,772.16
Income from Other Sources....	297,524.30	278,814.08	+ 18,710.22
Total Income	10,117,700.28	9,521,217.90	+ 596,482.38
Less Taxes and Fixed Charges	6,969,221.35	6,909,622.61	+ 59,598.74
Net Income	3,148,478.93	2,611,595.29	+ 536,883.64
Out of which there was taken for Betterments to Property, charged to Operation.....	88,534.72	108,560.19	— 20,025.47
Surplus from Operation for the Year	3,059,944.21	2,503,035.10	+ 556,909.11
Profit from Real Estate disposed of	.....	69,184.65	— 69,184.65
Total Surplus for Year.....	3,059,944.21	2,572,219.75	+ 487,724.46
Surplus at Beginning of Year	4,781,035.42	4,387,229.84	+ 393,805.58
Total	7,840,979.63	6,959,449.59	+ 881,530.04
Of this amount there has been appropriated:			
Old accounts written off...	3,609.91	636.43	+ 2,973.48
Additional Reserves for Taxes prior years.....	49,855.61	232,917.34	— 183,061.73
Adjustment of Expenses prior years	.....	13,281.17	— 13,281.17
Supercession and Depreciation	105,608.46	25,292.73	+ 80,315.73
Refunds applying prior years	11,821.11	.....	+ 11,821.11
Dividend on B. R. T. Co.'s Stock outstanding	2,242,690.00	1,906,286.50	+ 336,403.50
Total Appropriations	2,413,585.09	2,178,414.17	+ 235,170.92
Balance Sheet Surplus.....	$5,427,394.54	4,781,035.42	+ 646,359.12

NEW RAPID TRANSIT LINES.

Under date of December 20th last, the Public Service Commission for the First District sent a communication to the Board of Estimate and Apportionment, transmitting a proposition of the Interborough Rapid Transit Company (the result of conferences extending over several years) for the extension of its lines in Manhattan, the Bronx and Brooklyn, and for the third tracking of its elevated lines, and requested the advice of that Board as to the matters involved in such proposition, so that the two official bodies might work in harmony in carrying out an established policy of rapid transit development.

The Board of Estimate and Apportionment responded to the request by the appointment, on January 19, 1911, of a special committee to consider the proposition of the Interborough Company and any other propositions which might be submitted, and this committee, consisting of the Presidents of the Boroughs of Manhattan, Bronx and Richmond, acting in conjunction with the Public Service Commission, proceeded at once to make a thorough and earnest investigation of the subject—practically the only proposition before the joint committee being that previously submitted by the Interborough Company.

No basis of agreement with that Company having been reached by the committee during negotiations extending over several weeks, the Brooklyn Rapid Transit Company submitted to the joint committee a proposition under date of March 2, 1911, which was not intended to conflict with any rapid transit plans in the Boroughs of Manhattan and the Bronx, but to furnish comprehensive and adequate facilities for the Borough of Brooklyn and a large part of the Borough of Queens, with the eventual extension thereof to the Borough of Richmond.

The plan which was thus proposed included, as an essential accompaniment of improved local transit in these Boroughs, a suitable distribution subway system in Manhattan. Nearly two millions of persons reside in these two Boroughs and a large proportion of them visit Manhattan daily for business or pleasure. Upon this daily human influx, increasing as rapidly as conditions will permit, depends to a large extent the stability and growth of Manhattan's material prosperity. It is the rising tide of suburban population, contributing to the commercial, financial and intellectual activities of a great city, creating increasing demands for employment and consumption, which marks the evolution of a metropolis. It is the opportunity for cheap homes amid healthful surroundings which relieves unwholesome congestion and stimulates the moral, physical and political welfare of a cosmopolitan community. Not without adequate transit, reaching from its municipal heart like great arteries to its outlying sections, can New York realize its best and richest development, and even the appreciation of material values in Manhattan, the business heart, must depend mostly upon the facility with which the resident population of the neighboring Boroughs is brought into its territory. Until now this great outside army of residents has been brought only to the gateways of Manhattan. The handicap of double fares, change of cars and constricted terminals has been a retarding influence on municipal growth and public welfare. No system of transportation can be adequate which does not carry people quickly, safely and cheaply between their homes and the districts of their daily vocations.

Your Company, recognizing these considerations and its obligations toward them as the only public service corporation through which, by reason of its existing facilities, improvement of transit conditions in Brooklyn and Queens can be most promptly and effectually accomplished, proposed through its communication of March 2d, not only new lines and enlargement of existing lines in those two Boroughs, but a distributing subway line in Manhattan, from the Battery to 59th Street, located mostly on Broadway, with suitable connections with the East River Bridges and a new tunnel under the river. The plan of transportation thus proposed received instant and general public approval. **It did not involve the use of any thoroughfare in Manhattan covered by negotiations between the City and any other railroad company. It did not conflict with any plans for the development of rapid transit in Manhattan and the Bronx nor in part of Queens.** During the negotiations and conferences however, it became evident that the City might not be able to agree with the Interborough Company as to desired rapid transit lines in Manhattan and the Bronx if the Brooklyn Company was to be allowed a distributing line for its passengers on Broadway. The joint committee therefore requested your Directors to consider whether the Company would include in its proposition all of such Manhattan and Bronx lines (with the exception of a line on Seventh Avenue south of 42d Street) and certain additional lines in Queens and Brooklyn. Assurance to this effect was furnished in the Company's communications of April 25th and May 2d.

The conclusions of the Joint Committee were incorporated in a unanimous report under date of June 5th outlining generally the principles which should guide the City in transit commitments, and recommending specifically not only the carrying out, under conditions laid down in the report, of the transportation plan as substantially presented in your Company's original proposition of March 2d, but also the allotment to the Interborough Company, under terms prescribed, of lines which it had sought to operate in Manhattan, Bronx, Queens and Brooklyn Boroughs. In the contingency that the Interborough Company should not accept the terms of the report as related to that Company, most of the lines proposed for operation by it were, by the report, to be offered to the Brooklyn Company. *This report was unanimously approved on June 21st by the Board of Estimate and Apportionment, including the Mayor,* and the Companies, under the resolution of approval, were requested to file their acceptance or rejection of the terms proposed for each on or before June 28th. The Interborough Company's reply was a declination and a withdrawal of its previous propositions. The Brooklyn Company's reply was a general acceptance. Once more the Joint Committee reported, suggesting some modifications in terms for each Company and recommending the preparation of contracts for carrying out substantially the Brooklyn Company's original proposition, conditioned, however, upon the Company's assurance on or before July 6th that it would, if requested, operate additional lines which had been allotted to the Interborough Company but declined by that company, and once more the Board of Estimate approved the Committee's recommendations. The assurance required of the Brooklyn Company was again formally given. In the meanwhile negotiations had been resumed by the Joint Committee with the Interborough Company, but no agreement satisfactory to the Board having been reached, the Board, on July 21, 1911, acting for the third time upon the recommendation of its special committee and the Public Service Commission, adopted resolutions reciting that it would "approve contracts to be prepared by the Public Service Commission under the general provisions of the Rapid Transit Act for the construction, equipment and operation of rapid transit railways along the lines now proposed for operation by the Brooklyn Rapid Transit Company —either through instrumentality of such new railroad company as may be organized for the purpose, or through its present agencies—and for the extension and third-tracking of the existing elevated lines of the Brooklyn Rapid Transit Company," and requesting the Public Service Commission at the earliest practicable date to submit the necessary forms of contract. Thus, with great deliberation, and after the fullest opportunity for public discussion and for corporate co-operation, was the City's policy of transportation officially defined, and your Company's relation thereto materially broadened.

The Rapid Transit Act requires a certain procedure to be followed, including a public invitation for proposals, and these formalities are now to be undertaken by the Public Service Commission. Upon their completion, and upon the award, if made, in accordance with the declared policy and expressed sentiment of the two official bodies (the Board of Estimate and Apportionment and the Public Service Commission), your Company, through the instrumentality of a new corporation to be organized for that purpose, and with the co-operation of existing railroad companies, will be furnished with the necessary authority to undertake the execution of a much larger plan of transportation than it originally proposed—involving the expenditure of much additional money, and operation over a much wider territory. Your Company, through its new instrumentality, while procuring its distribution line in Manhattan and the enlargements asked for in Brooklyn and Queens, will no longer be a local corporation, serving the people of two Boroughs, but a Greater New York corporation, serving the people of five Boroughs. The conditions which have brought about this situation have not been of our seeking, but the responsibility which it involves will not be evaded, and the opportunity which it affords for public service will not be ignored. In the disinterested purpose and intelligent consideration which marked the precedent official conferences, and in the subsequent declaration of principles upon which the City's representatives acted, a new chapter was written in the history of municipal transit and a new standard

of official conduct and performance was established. Your Directors conceive it to be their paramount duty to insure, so far as the obligation rests upon them, the complete and satisfactory carrying out of the City's comprehensive and far-sighted policy for a unified transportation system, capable of indefinite expansion, constructed and equipped in accordance with the most improved methods, and operated with the highest attainable efficiency and for a single fare. The radical safeguards to be embodied in the proposed contract for the protection of the City's interests make the terms severe, the rewards of successful operation are to be shared equally by the City and the operator, and the privilege of recapture after ten years is a financial handicap to the operator—but so much does the proposed new system offer for the development and welfare of the City that it would be an extremely short-sighted policy for an existing transportation company, from motives of temporary expediency or profit, to refrain from co-operating for the accomplishment of these great results—in which, with the City and its people, the operator, so long as it fulfills its obligation faithfully and renders to the public the service called for, may be participant both as to pride and profit.

Under the terms of the proposed contract the operator will be called upon to expend approximately $75,000,000 in construction and equipment. This money your Directors have already arranged for. The plan of financing will be announced at the proper time.

The system of transportation comprised in the proposed contract will traverse sections aggregating substantially nine-tenths of the area of Greater New York and will serve seven-tenths of the population. The only important section not covered is that which would be served by the construction of a rapid transit line on Seventh Avenue, from 42d Street south, passing the Pennsylvania Railroad Station. In the event that such a line should not be constructed and operated as a natural extension of the existing rapid transit railroad, it could be made a part of the new system with a northerly extension on the east side of Manhattan, which within a few years will probably be necessary for the relief of that growing population. It should be borne in mind, however, that without any extension on Seventh Avenue the lines already comprised in the new rapid transit system will bring within short distance of the Pennsylvania Station several millions of people of Greater New York who cannot now reach it at all by rapid transit except with change of cars and for two fares. The train platforms in the Pennsylvania Station will be only 500 feet farther from the proposed Broadway subway than the train platforms in the new Grand Central Station will be from the present subway station at 42d Street.

CONSOLIDATED BALANCE SHEET, JUNE 30, 1911.

ASSETS.

COST OF ROAD AND EQUIPMENT:		
Properties owned in whole or in part by Brooklyn Rapid Transit Company	$125,486,453.28	
Construction, Expenditure, Constituent Companies, not yet funded	465,455.23	
	$125,951,908.51	
Bonds of Brooklyn City Railroad Company deposited with Trustee of Brooklyn Rapid Transit Company Refunding 4% Bonds	600,000.00	
Advances to Leased Companies, account of additions and betterments to Leased Lines	11,233,083.38	
Securities deposited with Trustee to guarantee performance of terms of Lease of Brooklyn City Railroad (Comprising $2,000,000 Brooklyn, Queens County & Suburban Railroad Co. 1st Mortgage 5% Bonds at 103½, $25,000 Brooklyn Rapid Transit 5% Bonds at par, $1,627,000 Brooklyn City Railroad Consolidated 5's at 103½, $125,000 Brooklyn City Railroad Refunding 4's at par, and Cash $975)	3,904,920.00	
		$141,689,911.89
MATERIALS AND SUPPLIES		1,012,607.83
CURRENT ASSETS:		
Accounts Receivable	$864,980.21	
Investments	177,164.20	
Cash on hand and in Bank	$1,518,058.84	
		2,560,203.25
In addition there are the following Treasury Bonds and Stocks available for sale not included in Assets or Liabilities:		
Brooklyn Rapid Transit Company—Capital Stock, par value	$146,228	
Bonds of Brooklyn Rapid Transit and Constituent Companies, par value	16,016,500	
	$16,162,728	
SPECIAL DEPOSITS OF SECURITIES AND CASH:		
Insurance Reserve Investments	$216,155,82	
Cash deposited to guarantee performance of contract	500.00	
		216,655.82
PREPAID ACCOUNTS		110,181.74
		$145,589,560.53

LIABILITIES.

CAPITAL STOCK:		
Brooklyn Rapid Transit Company—		
Capital Stock	$45,000,000.00	
Less—In Treasury	146,228.00	
	$44,853,772.00	
Constituent Companies—		
Shares not owned by the Brooklyn Rapid Transit Company	842,608.98	
		$45,696,380.98
FUNDED DEBT:		
Issued:		
Brooklyn Rapid Transit Company	$56,717,000.00	
The Brooklyn Heights Railroad Company	250,000.00	
The Nassau Electric Railroad Company	15,000,040.00	
Brooklyn, Queens County & Suburban Railroad Company	6,624,000.00	
Brooklyn Union Elevated Railroad Co.	23,000,000.00	
Sea Beach Railway Company	650,000.00	
	$102,241,040.00	
Less—In Treasury or pledged as collateral	$16,016,500	
Deposited with Trustees of Mortgages	1,809,000	
	17,825,500.00	
		84,415,540.00
REAL ESTATE MORTGAGE		150,000.00
CURRENT LIABILITIES:		
Bills Payable (secured by deposit of Brooklyn Rapid Transit Company Refunding Bonds)	$5,100,000.00	
Accounts Payable	1,640,361.94	
Taxes accrued	1,855,289.37	
Interest accrued on Funded Debt	615,469.03	
Interest and Rentals accrued	59,925.58	
		9,271,045.92
RESERVES:		
Insurance Reserve	$267,584.09	
Accrued Amortization of Capital	361,615.00	
		629,199.09
SURPLUS		5,427,394.54
		$145,589,560.53

PRICE, WATERHOUSE & CO., CHARTERED ACCOUNTANTS,
54 William Street, New York City,
August 26, 1911.

We have examined the books and accounts of the Brooklyn Rapid Transit Company and constituent Companies for the year ending June 30, 1911, and certify that in our opinion the above Balance Sheet is properly drawn up so as to show the true financial position of the Company and its constituent Companies at that date, and that the Income Account for the year as shown herewith is correct.

(Signed) PRICE, WATERHOUSE & Co.,
Chartered Accountants.

CONSOLIDATED BALANCE SHEET, JUNE 30, 1911.

ILLINOIS CENTRAL RAILROAD COMPANY.

REPORT OF THE BOARD OF DIRECTORS.

To the Stockholders of the Illinois Central Railroad Company:

The Board of Directors herewith submit report covering the operations and the affairs of the Company for the year ended June 30, 1911.

The number of miles of railroad operated on June 30, 1910, was.. 4,550.54
On July 1, 1910, there was transferred from "Mileage of road leased to other companies" to "Mileage of road operated," the line Riverside Jct., Ill., to Harlem, Ill..... 2.15
There was added on January 17, 1911, the mileage formerly operated as the Brookhaven & Pearl River R. R., from Brookhaven, Miss., to Monticello, Miss..... 23.40
The number of miles in operation on June 30, 1911, was..... 4,576.09
The average number of miles operated during the year was..... 4,563.27

INCOME.

The following income account for the year is stated in accordance with the Company's returns to the Interstate Commerce Commission and for comparative purposes the account for the preceding year is re-stated.

	1911.	1910.	Increase+ Decrease—
Average Miles operated during year	4,563.27	4,550.54	+ 12.73
Operating revenues:			
Freight	$40,682,197.38	$38,777,758.45	+$1,904,438.93
Bridge tolls and miscellaneous freight	3,132,190.02	3,093,636.52	+ 38,553.50
Passenger	12,925,004.44	11,881,013.64	+ 1,043,990.80
Bridge tolls and miscellaneous passenger	263,226.04	198,876.09	+ 64,349.95
Mail	939,005.88	940,118.90	— 1,113.02
Express	1,524,416.15	1,540,218.94	— 15,802.79
Other passenger train	424,431.76	403,506.53	+ 20,925.23
Other transportation	672,218.13	658,122.97	+ 14,095.16
Revenue from operations other than transportation	414,341.69	391,469.05	+ 22,872.64
Total operating revenues	60,977,031.49	57,884,721.09	+ 3,092,310.40
Operating expenses:			
Maintenance of way and structures	7,523,295.47	7,607,891.43	— 84,595.96
Maintenance of equipment	12,317,364.33	13,502,249.72	— 1,184,885.39
Traffic expenses	1,334,163.08	1,246,381.57	+ 87,781.51
Transportation expenses	21,333,834.75	19,734,910.53	+ 1,598,924.22
General expenses	1,347,570.50	1,229,297.14	+ 118,273.36
Total operating expenses	43,856,228.13	43,320,730.39	+ 535,497.74
Net operating revenue	17,120,803.36	14,563,990.70	+ 2,556,812.66
Outside operations:			
Revenues	471,491.13	462,254.04	+ 9,237.09
Expenses	527,955.37	496,672.27	+ 31,283.10
Net deficit from outside operations	56,464.24	34,418.23	+ 22,046.01
Total net revenue	17,064,339.12	14,529,572.47	+ 2,534,766.65
Taxes accrued	2,671,290.22	2,524,898.68	+ 146,391.54
Operating income	14,393,048.90	12,004,673.79	+ 2,388,375.11
Other income	6,742,438.50	5,284,608.85	+ 1,457,829.65
Gross corporate income	21,135,487.40	17,289,282.64	+ 3,846,204.76
Deductions from gross corporate income	9,820,143.48	9,456,084.46	+ 364,059.02
Net corporate income	11,315,343.92	7,833,198.18	+ 3,482,145.74
Disposition of net corporate income:			
Dividends on capital stock	7,650,720.00	7,650,720.00	.....
Appropriated for additions and betterments	164,847.23	.....	+ 164,847.23
Balance transferred to credit of profit and loss	3,499,776.69	182,478.18	+ 3,317,298.51

REVENUE.

The business during the year has continued satisfactory, and while the revenues for the preceding year were the largest in the Company's history up to that time, the revenues for the current year show substantial increases in practically all departments, the total operating revenues for the current year being $60,977,031.49 compared with $57,884,721.09, an increase of $3,092,310.40 or 5.34 per cent.

Revenue from the transportation of freight increased $1,904,438.93 or 4.91 per cent. The tons of revenue freight carried decreased from 27,588,277 tons to 27,489,564 tons. Table No. 13 shows the various commodities transported.

Revenue from the transportation of passengers increased $1,043,990.80 or 8.79 per cent. The increase in passenger traffic was general over the entire system, but the percentage of increase was somewhat greater on the Southern Lines than on the other portions of the system.

Table No. 12 furnishes general details of the freight and passenger traffic.

EXPENSES.

The operating expenses for the year were $43,856,228.13 compared with $43,320,730.39 for the preceding year, an increase of $535,497.74 or 1.24 per cent.

MAINTENANCE OF WAY AND STRUCTURES.

Maintenance of way and structures expenses decreased $84,595.96 or 1.11 per cent.

Substantial increases in wages were granted to section laborers on the Northern and Western Lines and on a portion of the Southern Lines; also to Section Foremen, Bridge and Building Foremen and Water Works Foremen over the entire System.

The following important renewals were made, the entire cost of which was charged to Operating Expenses.

The total number of cross ties renewed was 1,837,736, equal to 588.41 miles of continuous track, and to 11.76 per cent. of all ties in track including sidings.

1.7 miles of track were relaid with new steel rail replacing rail of the same weight.

3,000 lineal feet of timber and pile bridges were rebuilt or replaced by embankments.

1,732 lineal feet of iron pipe culverts were put in.

Thirty miles of road bed were widened preparatory to ballasting. 505 miles of ballasted track were repaired or renewed to restore to original standard.

Reference is made to information shown under the head of "Physical Changes" on page 10 of this report for work charged wholly to "Additions and Betterments" as well as work involving both "Renewals" and "Additions and Betterments."

MAINTENANCE OF EQUIPMENT.

The expenditures for maintenance of equipment decreased $1,184,885.39 or 8.78 per cent.

Charges for depreciation of equipment amounted to $1,572,107.45, compared with $393,339.08 for the previous year, an increase of $1,178,768.37.

340 locomotives received general repairs compared with 297 last year, and 335 locomotives received thorough repairs compared with 356 last year.

The average mileage per serviceable engine for the year was 34,145.

371 passenger train cars received general repairs compared with 374 last year, and 124 cars received thorough repairs compared with 111 last year.

54,466 freight cars received medium repairs compared with 53,576 last year, and 30,435 cars received heavy repairs compared with 36,574 last year.

The average age of locomotives was 14.22 years compared with 13.87 years for the last year; of revenue freight cars 9.20 years compared with 8.44 years last year; of passenger train cars 19.2 years compared with 19.4 last year.

TRAFFIC EXPENSES.

Traffic expenses increased $87,781.51 or 7.04 per cent.

A new commercial agency at Minneapolis, Minn., and a freight and passenger agency at Sacramento, Cal., were established.

Additional contracting and soliciting forces were added to the agencies at New York, N. Y., Boston, Mass., Pittsburg, Pa., Evansville, Ind., and Portland, Ore. An Assistant Industrial and Immigration Commissioner was added to the traveling representation in the South.

TRANSPORTATION EXPENSES.

Transportation expenses increased $1,598,924.22 or 8.10 per cent.

The revenue freight train miles increased 468,490 miles or 2.65 per cent.

The tons of all freight carried increased 753,329 or 2.28 per cent, and the tons of all freight carried one mile increased 248,092,657 or 3.18 per cent.

The revenue passenger train miles increased 162,324 miles or 1.28 per cent.

The number of revenue passengers increased 1,556,995 or 6.17 per cent. and the revenue passengers carried one mile increased 49,173,299 or 7.56 per cent.

From time to time during the fiscal year substantial increases were granted in the rates of pay of engineers, firemen, conductors, brakemen, flagmen, baggagemen, switchmen, roundhousemen, telegraph operators and a number of other employes engaged in the transportation department.

As a result of the labor difficulties during the spring and summer of 1910, the wages of coal miners were increased and this resulted in a substantial increase in the price per ton paid by the Company for its fuel supply.

GENERAL EXPENSES.

General expenses increased $118,273.36 or 9.62 per cent.

TAXES.

There was an increase of $146,391.54 or 5.80 per cent in taxes.

There was a substantial increase in the Federal Excise tax, in the Charter tax in Illinois and in the taxes in several other states through which the road is operated.

FINANCIAL.

The general balance sheet Table No. 4 showing the financial condition of the Company at the close of the fiscal year is in the form prescribed by the Interstate Commerce Commission. For the purpose of comparison, the figures for the fiscal year 1910 have been re-stated in the same form.

CAPITAL STOCK AND FUNDED DEBT.

There was no change in the capital stock during the year.

$71,000.00 Belleville & Eldorado R. R. Co. 7% Bonds matured July 1st, 1910, and were redeemed. Upon the Company depositing these bonds with the Trustee of the St. Louis Division 3½% Mortgage of 1951, it became entitled to issue $78,000.00 of bonds secured under that mortgage.

On January 26th, the $2,662,000.00 of Purchased Lines 3½% Bonds of 1952 which were held in the treasury and the $78,000.00 of St. Louis Division 3½% Bonds of 1951 were exchanged for $2,740,000.00 of Gold Refunding 4% Bonds of 1955 in accordance with the terms of section three of article two of the Refunding mortgage.

The railroad property known as the Indianapolis Southern Railroad was sold under foreclosure to the Illinois Central Railroad Company, and early in the calendar year 1911 this Company mortgaged to the trustee of the Refunding mortgage by a supplemental indenture, the property thus acquired. In accordance with section two of article two of the Refunding mortgage, the Company issued during the month of June $8,200,000.00 of the $10,000,000.00 of bonds authorized to be issued. The $8,200,000.00 of bonds so issued, in addition to the $2,740,000.00 of Gold Refunding bonds above referred to, were sold and the proceeds are reflected in the cash account.

$2,000,000.00 of the First Lien Equipment Fours were delivered to the trustee and cancelled in accordance with the provisions of the indenture.

SECURITIES OWNED.

In order to simplify the accounts, certain bonds of the subsidiary companies have been returned to the respective companies and the valuation at which the said bonds were carried on the books of this Company is now shown under the caption "Capital Advances", Table No. 6.

The accounts of the trustees of the Louisville, New Orleans & Texas Railway Company Land Grant Income Mortgage of 1934 have been closed and $3,446,723.10 of bonds owned by your Company and pledged as partial security under the Illinois Central Railroad Company's Fours of 1953, have been surrendered and cancelled.

$325,345.11 of bonds and scrip of the Yazoo & Mississippi Valley Railroad Company Gold Improvement Fours of 1934 were received in payment for amounts advanced by your Company for construction.

INSURANCE AND OTHER FUNDS.

The Surplus Dividend Fund which at the close of the last fiscal year amounted to $1,509,336.92, has been closed and the amount credited to "Profit and Loss".

The Insurance Fund was augmented during the year by charges to operating expenses; and other changes have been made as follows:

	Year Ending June 30, 1911.	Year Ending June 30, 1910.
Amount at credit of fund July 1st	$2,036,464.51	$2,009,655.15
Added through monthly charges to operating expenses	60,000.00	60,000.00
Collected from lessees account of insurance	5,189.02	6,121.01
Interest received on investments of the fund	81,320.00	84,160.00
Fire losses collected	309.02	197,710.10
	$2,183,282.55	$2,357,646.26
Losses by fire	$80,486.04	$287,450.66
Premiums paid for reinsurance	35,094.93	33,731.09
	$115,580.97	$321,181.75
Amount at credit of fund June 30th	$2,067,701.58	$2,036,464.51

The trustees of the various sinking funds have reported holdings as of June 30th, 1911, as follows:

Cairo Bridge Contingent Fund, $504,180.00, a decrease of $570.11.

Cairo Bridge Sinking Fund, $223,007.11, an increase of $24,865.40.

Sinking Fund for Western Lines Bonds, $1,040,530.76, an increase of $85,249.52.

Sinking Fund for Omaha Division Bonds, $128,644.47, an increase of $14,592.78.

The additions during the year to the several sinking funds amounted to $124,137.59.

ADDITIONS AND BETTERMENTS.

There were expended during the year for Additions and Betterments (including improvements on subsidiary properties) $3,581,668.06. The following is a classified statement of these expenditures:

	Additions and Betterments paid for from Proceeds of General Refunding Mortgage Bonds.	Additions and Betterments Appropriated out of Year's Income.	Additions and Betterments Represented by Advances to Subsidiary Lines.
Right of way and station grounds	$62,284.77	$70,955.03	$25,490.43
Real estate	355,854.67	Cr. 7,625.00	.....
Widening cuts and fills	.....	.....	33,759.64
Protection of banks and drainage	2,968.31	.....	20,905.99
Grade reductions and changes of line	.....	.....	5,822.75
Bridges, trestles and culverts	195,243.63	8,653.47	270,912.87
Increased weight of rail	55,729.21	5,626.66	52,398.48
Improved frogs and switches	2,670.76	.....	.....
Track fastenings and appurtenances	1,149.89	.....	.....
Ballast	.....	.....	59,942.52
Additional main tracks	98,335.78	.....	210,240.14
Sidings and spur tracks	99,988.10	4,871.98	113,262.66
Fencing right of way	282.52	60.07	661.54
Improvement of crossings under or over grade	2,342.42	.....	889.43
Elimination of grade crossings	144,832.89	Cr. 15,846.89	3,453.28
Interlocking apparatus	6,715.22	Cr. 1,948.70	3,861.39
Block and other signal apparatus	3,027.25	185.59	159.60
Telegraph and telephone lines	2,751.74	.....	14,349.60
Station buildings and fixtures	56,528.47	100,984.86	60,401.12
Shops, enginehouses and turntables	35,809.72	7,455.43	51,530.85
Shop machinery and tools	9,049.75	511.49	7,717.63
Water and fuel stations	1,482.36	Cr. 14,985.81	25,812.20
Grain elevators and storage warehouses	468.91	.....	1,447.72
Dock and wharf property	.....	.....	136.79
Electric light and power plants	.....	.....	466.90
EQUIPMENT:			
Steam locomotives	947,016.80	120,155.80	.....
Passenger train cars	325,736.62	255,755.79	.....
Freight train cars	24,661.47	Cr.304,925.06	.....
Work equipment	610.68	Cr. 58,293.21	.....
Floating equipment	1,600.00	Cr. 5,000.00	.....
Other additions and betterments	10,937.33	Cr. 1,744.27	5,118.03
	$2,448.079.27	$164,847.23	$968,741.56

The following shows the amount advanced during the year to each of the subsidiary lines, these amounts being included in "Capital Advances" shown in Table No. 6 of this report:

Chicago, St. Louis & New Orleans R. R.	$657,595.22
Canton, Aberdeen & Nashville R. R.	2,472.38
South Chicago R. R.	1,657.10
Blue Island R. R.	1,472.73
Dubuque & Sioux City R. R.	176,541.90
Kensington & Eastern R. R.	35,718.31
Mississippi & Alabama R. R.	8,309.09
Alabama Western R. R.	84,974.83
	$968,741.56

PHYSICAL CHANGES.

The physical condition of the Company's road and equipment has materially improved during the year. The following covers the principal physical improvements, the cost of which was wholly or partially charged to "Additions and Betterments":

ROADWAY AND STRUCTURES:

There were 128.46 miles of track relaid with 90 lb. new steel rail, .21 mile with 85 lb. new steel rail and 38.61 miles with 75 lb. new steel rail, making a total of 167.28 miles of track relaid with new steel rail. During the same period 12.22 miles of track were relaid with second hand rail replacing rail of lighter pattern. The total mileage of track relaid with new and second hand steel rail was 179.50.

Eighty-five new industrial tracks aggregating 7.74 miles in length were added after deducting industrial tracks which were taken up.

Sixty-three new Company sidings aggregating 8.05 miles in length were added after deducting the tracks taken up and those converted into second main tracks.

Eighty-one miles of partially ballasted track were reballasted and brought up to present standard, washed gravel being used for this purpose. This work involved the widening of a like mileage of embankment preparatory to placing the ballast.

On October 10th, 1910, 1.96 miles of Company's sidings were put into operation as second main track between Jackson, Tenn., and Frogmoor, Tenn.

Second main track was completed and opened for operation on July 6th, 1911, between Curve and Division, Tenn., a distance of 1.3 miles, and second main track between Ponchatoula and Orleans Junction, La., a distance of 36.04 miles, is in course of construction and about 63% completed. It is expected the track will be opened for operation about October 15th, 1911. Second main track between Hawthorne and Parkway, Ill., a distance of 4 miles is also under construction and about 70% completed. It is expected this track will be opened for operation about October 1st, 1911.

The work of constructing third and fourth main tracks between Blue Island Junction and Matteson, Ill., a distance of 13.1 miles, involving 26.2 miles of continuous track, is now under way, the work having been started a short time before the close of the fiscal year. It is expected that these tracks will be ready for service about November 1st, 1911.

The Company has in process of installation electric block signals for the track between Orleans Junction and New Orleans, La., a distance of approximately twelve miles, which when completed will protect about twenty-four miles of track. This with the trackage previously equipped makes a total of 581.30 miles of protected track. There is also in progress the work of making necessary changes in the old signal arrangements between Blue Island Junction and Matteson, Ill., a distance of 13.26 miles, which when completed will afford protection for the new third and fourth tracks now being constructed between these points as well as for the present two main tracks.

A combined freight station, office building and warehouse of brick and reinforced construction and the yard facilities in connection therewith, at New Orleans, La., were completed.

Depots were rebuilt or enlarged as follows: Passenger depots at Murphysboro, Ill., Crystal Springs and Louisville, Ky., and Jackson, Tenn.; freight depots at Murphysboro, Ill., Henderson, Ky., Waterloo and Sioux City, Iowa; combination stations at Marissa and Galton, Ill., Cerulean, Gracey, Otter Pond, Graham and Whitesville, Ky. Umbrella sheds were erected at Jackson, Tenn.

A new coaling plant was erected at Manchester, Iowa, to replace one destroyed by fire.

A new water station was installed at La Branch, La., with a water tank of 100,000 gal. capacity. Two additional tanks were erected at Chicago of 20,000 gal. and 25,000 gal. capacity respectively. At Shandy, Tenn., a new 100,000 gal. tank was erected, replacing a worn out tank of 50,000 gal. capacity. At Independence, Iowa, a new 100,000 gal. tank was erected replacing a worn out tank of 40,000 gal. capacity.

Sheds for the protection of car repairers were erected at Mounds, Ill., Memphis, Tenn., Nonconnah, Tenn., McComb, Miss., and Harahan, La.

New eighty-five ft. turntables were installed at Paducah, Ky., and McComb, Miss., replacing sixty-six ft. tables.

3,693 lineal feet of permanent bridges and trestles were constructed replacing timber and pile bridges and trestles and embankment.

722 lineal feet of permanent bridges and trestles were rebuilt or replaced by embankments.

34,792 lineal feet of timber and pile bridges and trestles were rebuilt or replaced by embankment.

1,003 lineal feet of permanent stone culverts were put in.

EQUIPMENT:

Fifty-one locomotives were added during the year and two were sold or destroyed, an increase of forty-nine locomotives with an increase of 914.6 tons in tractive efficiency.

Fifty-three passenger train cars were added during the year and three cars were vacated or transferred to other service, an increase of fifty cars.

Two hundred and twenty-four freight-train cars were added during the year and 1,879 were sold, destroyed or transferred to work service, a decrease of 1,655 cars. The cars retired from freight service were old and of light capacity. The average capacity of cars owned at the close of the year was 38.74 tons compared with 38.39 tons for last year, and the total capacity of cars was 2,232,905 tons compared with 2,277,831 tons for last year.

GENERAL REMARKS.

In furtherance of the plan of consolidating the Company's various lines of railroad, the Indianapolis Southern Railroad, all the capital stock of which has been owned by your Company for a considerable time, but which road has been operated independently, was sold under foreclosure on May 5th, 1911, and was purchased by your Company.

Commencing July 1st, 1911, the Indianapolis Southern Railroad will be operated as a part of the Indiana Division of the railroad of your Company.

The railroad extending from Brookhaven to Nola, Miss., leased to the Pearl River Lumber Co., and an extension to Monticello, Miss., constructed by the latter company, operated independently under the name of the Brookhaven & Pearl River Railroad, were taken over and the extension purchased by the Mississippi Valley Company in accordance with an agreement dated June 11th, 1904, made at the time of the construction of the extension. On January 17th, 1911, your Company began the operation of its trains over the line under a trackage agreement.

On July 3rd the new freight station and facilities located at New Orleans, La., which have been in the course of construction for several years and to which reference has heretofore been made in the annual reports of your Company, were opened for operation.

Work in connection with the enlargement of the yards and facilities at Centralia, Ill., was begun on July 1st, 1911, and at Champaign, Ill., on August 1st, 1911. It is expected that the important additions under way at these points will furnish much needed yard facilities and result in a more punctual handling of traffic.

Under the Pension System, there are carried on the rolls 364 employes to whom payments aggregating $82,598.93 were made during the fiscal year.

The Board takes pleasure in acknowledging the fidelity, efficiency and splendid team work displayed by the officers and employes in the discharge of their duties during the past year.

By order of the Board of Directors.

C. H. MARKHAM,
President.

FIFTY-SEVENTH ANNUAL REPORT OF THE LEHIGH VALLEY RAILROAD COMPANY.

PHILADELPHIA, September 20, 1911.

To the Stockholders of the
LEHIGH VALLEY RAILROAD COMPANY:

The Board of Directors herewith submit the annual report of the business and condition of your Company for the fiscal year ended June 30, 1911.

MILEAGE.

The first track mileage owned or controlled and operated by the Lehigh Valley Railroad Company, the main line of which is double track, extending from Jersey City, N. J., to Buffalo and Suspension Bridge, N. Y., is as follows:—

	Miles.
Lehigh Valley Railroad Company	300.93
Controlled by ownership of entire capital stock	937.44
Controlled by ownership of majority of capital stock and lease	115.37
Operated under lease	27.04
Total mileage operated (owned or controlled)	1,380.78
Trackage rights over railroads owned by other companies	48.91
Total first track mileage	1,429.69

In addition to the above, there are 597.11 miles, or 41.76 per cent., of second track, 67.60 miles of third track, 33.32 miles of fourth track and 1,143.45 miles of yard tracks and sidings, a total of 3,271.17 miles of track in operation at the close of the year. The average number of miles of railway operated for the year, and upon which the mileage statistics in certain tables submitted in this report are based, was 1,432.29.

The decrease of 3.33 miles of first track is due principally to changes in the alignment and the abandonment of certain branches in the anthracite coal region. The increase in third and fourth track mileage is occasioned by the construction of additional tracks more specifically mentioned hereinafter.

OPERATING REVENUES AND EXPENSES.

The statement following sets forth the gross revenues and expenses and net revenue from the operation of the entire system for the fiscal year, not including other income, compared with similar figures for the fiscal year 1910. The complete income account appears herewith.

GROSS OPERATING REVENUES.

From	1911.	1910.	Increase or Decrease.
Coal freight	$17,155,534.15	$15,821,797.62	$1,333,736.53
Merchandise freight	14,687,291.27	14,757,799.34	—70,508.07
Passenger	4,568,029.75	4,330,172.45	237,857.30
Mail	190,760.08	193,859.75	—3,099.67
Express	453,819.83	462,437.70	—8,617.87
Other transportation	360,717.36	356,165.22	4,552.14
Miscellaneous	271,250.55	245,166.09	26,084.46
Total operating revenues	$37,687,402.99	$36,167,398.17	$1,520,004.82

OPERATING EXPENSES.

	1911.	1910.	Increase or Decrease.
Maintenance of way and structures	$3,620,176.26	$3,462,903.41	$157,272.85
Maintenance of equipment	6,003,286.95	5,995,810.09	7,476.86
Traffic expenses	1,010,675.41	918,720.11	91,955.30
Transportation expenses	11,979,278.24	10,593,565.10	1,385,713.14
General expenses	793,901.50	713,148.52	80,752.98
Total operating expenses	$23,407,318.36	$21,684,147.23	$1,723,171.13
NET OPERATING REVENUE	$14,280,084.63	$14,483,250.94	—$203,166.31
Ratio of operating expenses to operating revenues	62.11%	59.95%	2.16%

OPERATING REVENUES.

COAL FREIGHT.

The transportation of coal, including coke, produced a revenue of $17,155,534.15, an increase of $1,333,736.53, or 8.43 per cent., as compared with the preceding year. This increase is general in both anthracite and bituminous coal.

The percentage of coal freight revenue to total operating revenue was 45.52 per cent., an increase of 1.77 per cent.

Excluding the Company's supply coal, 15,589,750 tons of coal and coke were transported, an increase of 1,555,354 tons, or 11.08 per cent.

The number of tons moved one mile was 2,369,540,329, an increase of 204,412,554, or 9.44 per cent.

The average haul decreased from 154.27 to 151.99 miles, a decrease of 2.28 miles, or 1.48 per cent.

The tonnage of this class of revenue was 54.68 per cent. of the total tonnage hauled during the year, an increase of 3.05 per cent.

MERCHANDISE FREIGHT.

The revenue derived from the transportation of merchandise freight amounted to $14,687,291.27, a decrease of $70,508.07, or .48 per cent., as compared with the preceding year.

The percentage of revenue derived from the transportation of merchandise freight compared with the total operating revenue was 38.97 per cent., a decrease of 1.83 per cent.

The tonnage moved, excluding Company's material, was 12,922,562 tons, a decrease of 224,579 tons, or 1.71 per cent.

The number of tons carried one mile was 2,514,665,868, a decrease of 56,764,321 ton miles, or 2.21 per cent.

The average haul decreased from 195.59 to 194.59 miles, a decrease of 1.00 mile, or .51 per cent.

GENERAL FREIGHT.

The total revenue from both coal and merchandise freight was $31,842,825.42, an increase of $1,263,228.46, or 4.13 per cent., as compared with the preceding twelve months.

The entire freight traffic amounted to 28,512,312 tons, an increase of 1,330,775 tons, or 4.90 per cent.

The number of tons carried one mile was 4,884,206.197, an increase of 147,648,233 ton miles, or 3.12 per cent.

The average haul was 171.30 miles, a decrease of 2.96 miles, or 1.70 per cent.

The average revenue per ton was 111.68 cents, as compared with 112.50 cents last year, a decrease of .82 cent, or .73 per cent.

Company's freight, not included in the above, amounted to 2,996,612 tons, an increase of 278,555 tons, or 10.25 per cent.

The total freight train mileage was 8,975,970 miles, an increase of 242,706 miles, or 2.78 per cent.

Revenue received per freight train mile was $3.55, as compared with $3.50, being an increase of $0.05, or 1.43 per cent.

The average trainload of revenue freight was 544.14 tons, an increase of 1.78 tons, or .33 per cent. Including Company's freight, the average trainload was 564.44 tons, as against 561.51 last year, an increase of 2.93 tons, or .52 per cent.

PASSENGER.

The receipts from passenger traffic amounted to $4,568,029.75, an increase of $237,857.30, or 5.49 per cent., over the preceding year.

The total number of passengers carried was 5,359,754, an increase of 186,793, or 3.61 per cent.

The number of passengers carried one mile increased 10,365,847, or 4.19 per cent.

The average revenue per passenger was 85.23 cents, an increase of 1.52 cents, or 1.82 per cent.

The average revenue per passenger per mile was 1.771 cents, an increase of .022 cent, or 1.26 per cent.

The average distance traveled by each passenger was 48.13 miles, an increase of .27 mile, or .56 per cent.

Passenger train mileage was 4,448,049, an increase of 297,191 miles, or 7.16 per cent., as compared with an increase in this traffic of 5.49 per cent.

The average revenue from passengers per passenger train mile was 102.70 cents, a decrease of 1.62 cents, or 1.55 per cent.

MAIL.

The compensation received from the Federal Government for the transportation of United States mails was $190,760.08, a decrease of $3,099.67.

EXPRESS.

The revenue from this class of business amounted to $453,819.83, a decrease of $8,617.87.

OTHER TRANSPORTATION.

The earnings derived from transportation other than that shown under the preceding headings were $360,717.36, an increase of $4,552.14.

MISCELLANEOUS.

Miscellaneous revenue amounted to $271,250.55, an increase of $26,084.46.

OPERATING EXPENSES.

MAINTENANCE OF WAY.

The expenditures for maintenance of way and structures amounted to $3,620,176.26, an increase of $157,272.85, or 4.54 per cent., as compared with the preceding twelve months. The policy of making ample expenditures for the maintenance of the property has been continued throughout the year.

Three new steel bridges and one new concrete-steel bridge were built in connection with additional track construction. Sixteen new steel bridges and four concrete-steel bridges were placed in the track, replacing light iron or wooden bridges. Ten small bridges were replaced by culverts and nine bridges abandoned and the openings filled. One wooden highway bridge was replaced by a new solid floor steel bridge and one steel highway bridge was renewed.

663 tons of 110-pound rail, 3.024 tons of 100-pound rail and 14,042 tons of 90-pound rail, together with necessary frogs, switches, etc., were placed in the track.

975,963 tie plates were used.

555,038 cross ties, 2,150,111 feet B. M. switch ties, 886,562 B. M. bridge ties and lumber amounting to 4,682,410 feet B. M. were used.

222,658 of the cross ties, 332,929 feet B. M. of switch ties and 158,210 feet B. M. of bridge ties used were treated with creosote.

104,840 cubic yards of crushed stone were used in ballasting track.

61,249 feet of drain tile were placed in the roadbed.

6.03 miles of new telegraph and telephone pole line were erected, 75.83 miles rebuilt and 57.50 miles reset. 980.84 miles of copper and 47.98 miles of iron wire were used in extending and renewing the telephone, telegraph and signal wires on the system.

MAINTENANCE OF EQUIPMENT.

The total expenses for the maintenance of equipment during the year amounted to $6,003,286.95, an increase of $7,476.86, or .12 per cent., over the previous year. Included in the expenses is a charge of $1,072,770.81 for depreciation of equipment, as called for in the classification of accounts prescribed by the Interstate Commerce Commission.

The new equipment added to your property during the year consists of ten passenger locomotives, fifteen freight locomotives, five switching locomotives, forty-two steel passenger coaches, fifteen steel underframe milk cars, fifteen steel grading cars, three spreader cars, two caboose cars, six locomotive cranes and one snow plow. Orders have also been placed for twenty additional switching locomotives, ten freight locomotives, sixteen steel passenger coaches, two steel buffet-library cars, twenty-five steel baggage cars, three steel postal cars and one steam derrick car.

Sixteen passenger coaches and one combination car were converted into workmen's cars and three freight equipment cars were transferred to road service.

One dining car, one milk car and two caboose cars were rebuilt.

Seventeen worn-out locomotives, one passenger coach, one express car, 176 freight equipment cars, and four road service cars were condemned and destroyed during the year and their value written off the books by an appropriate charge through Operating Expenses. One business car was sold.

628 locomotives received heavy and general repairs.

Fifty-four passenger equipment cars received heavy repairs, 341 were painted and varnished, and two were equipped with wide vestibules and steel platforms. Three library cars were remodeled.

Steel underframes were applied to 1,661 wooden freight cars, making a total of 5,193 so equipped during the last three years. 22,362 freight equipment cars received heavy repairs.

The total number of locomotives on hand at the close of the year was 887 with a tractive power of 24,916,295 pounds.

The total number of freight equipment cars was 43,983 with a capacity of 1,590,832 tons.

The additions that have been made to equipment and the rebuilding and remodeling of same have resulted in increasing the average tractive power of locomotives in the last five years from 25,798 tractive power pounds to 28,091 tractive power pounds, and the average capacity of freight equipment cars, in the same period, from 61,750 pounds to 73,004 pounds.

TRAFFIC EXPENSES.

This class of expenses amounted to $1,010,675.41, an increase of $91,955.30 over the previous twelve months.

TRANSPORTATION EXPENSES.

The total cost of conducting transportation was $11,979,278.24, an increase of $1,385,713.14, or 13.08 per cent. over the preceding year. The increase is explained principally by the higher rates of wages paid employes.

The ratio of transportation expenses to total operating revenue was 31.79 per cent. as compared with 29.29 per cent. last year, an increase of 2.50 per cent.

GENERAL EXPENSES.

The expenditures under this heading amounted to $793,901.50, or 2.10 per cent. of the total operating revenues.

TAXES.

The taxes accrued on your property and business during the year amounted to $1,145,476.69, or 3.04 per cent. of the Company's revenue.

FLOATING EQUIPMENT.

The floating equipment of the Lehigh Valley Transportation Company, the entire capital stock of which is owned by your Company, has been well maintained. One steel tug, two 12-car steel floats, two covered barges, two steam hoisting barges, ten open lighters and eleven coal barges were purchased and received during the year. One car float and one barge were converted into cattle boats. One car float, one cattle boat, one covered barge and three lighters, unfit for further service, were condemned and sold.

The equipment used by your Company and its affiliated companies consists of the following, assigned as indicated:

GREAT LAKES.

Name.	Description.	Capacity.
Wilkes-Barre	Steel Steamship	6,000 tons.
Mauch Chunk	" "	6,000 "
Bethlehem	" "	3,000 "
Seneca	" "	3,000 "
Saranac	" "	3,000 "
Tuscarora	" "	3,000 "

One Fuel Lighter. One Tug.

NEW YORK AND COASTWISE BUSINESS.

20 tugs.	233 barges.	4 cattle boats.
4 steam lighters.	25 car floats.	1 hoisting boat.
4 work boats.	1 wrecking boat.	

ADDITIONS AND BETTERMENTS.

The total expenditures for additions and betterments were $3,351,270.92, of which $980,549.42 was deducted from income. The classification of these expenditures, as prescribed by the Interstate Commerce Commission, is given in the accompanying tables.

Substantial progress has been made in the construction of the branch lines from Ashmore (formerly Lumber Yard) to a connection with the main line near White Haven. This undertaking, as mentioned in the preceding annual report, will be a valuable factor in reducing the cost of handling traffic in that region, particularly coal, as it will shorten the line from certain coal fields and provide a route with lower grades and less curvature than at present encountered. In connection therewith, the line between Laurel Junction and Silver Brook Junction is being changed from single to double track in order to provide for the increased movement of traffic in that vicinity upon the opening of the new route. It is expected that these improvements will be completed and in use within a few months.

A branch, two and one-half miles in length, from a connection with the main line near Glendon to the plateau south of Easton, is under construction and rapidly approaching completion, making available a desirable site for the location of industries on the south side of the Lehigh River at Easton.

The construction of additional third and fourth tracks has been continued and there are now 67.60 miles of third track and 33.32 miles of fourth track on the system. An extension from Fullerton to Cementon, a distance of 3.72 miles, is completed, making a continuous four-track line of 19.61 miles through this congested territory. A further extension from Cementon to Treichler, a distance of four miles, is under way.

94,987 feet, or 17.99 miles, of Company's sidings and 17,688 feet, or 3.35 miles, of industrial sidings were constructed on the system during the year.

West of Roselle Park an objectionable depression was eliminated by raising 4,000 feet of the main line tracks a maximum of six feet.

The change in alignment, eliminating a sharp reverse curve in the main line, and the construction of additional yard facilities at South Bethlehem, referred to in previous annual reports, have been completed.

A freight yard with a capacity of 400 cars is being constructed at Richards (west of Easton) to provide facilities for handling the increasing local and interchange business in that territory, which is one of great traffic density.

To provide facilities for interchange with other railroads and to compensate for sidings absorbed by third and fourth track extensions a new yard of 220 cars capacity was constructed at Catasauqua.

A combination freight and passenger station of hollow tile and stucco was built at Milan, and separate passenger and freight stations of similar construction at Cortland. At South Bethlehem a concrete freight station was erected. New milk shipping stations were built at Erin and Wilseyville. Additions were made to the freight station at Wilkes-Barre and to the office buildings at Easton and Oak Island Transfer. A 16-stall concrete roundhouse was constructed at Coxton and a concrete boiler house at South Easton.

A steel bulkhead shed was erected at Pier 34, North River, New York, made necessary by the transfer to that point of the freight station at Pier 44, the lease of the latter having expired.

An additional platform 810 feet in length, with necessary tracks, was constructed at Oak Island Transfer, facilitating the delivery of eastbound less-than-carload freight to the New York Piers and eastern connections.

Extensive repairs were made to various bulkheads, sheds, piers and docks at New York and Jersey City as well as to the cold storage and shipping trestles at the Perth Amboy and Tifft Farm terminals.

Property has been acquired at Rockdale to provide a gravity water supply with a storage capacity of 6,000,000 gallons, which eliminates the expense of pumping.

New steel water tanks of 100,000 gallons capacity each, with 12-inch standpipes, were erected at Tunkhannock, Laceyville and Reeders.

A concrete ash pit with locomotive crane has been provided at South Easton, and an elevated ash pit at Canastota.

The dredging of a 22-foot channel at the Tifft Farm Terminal in Buffalo to enable large vessels to reach the coal and ore docks, has been completed.

Steel signal bridges, replacing bracket poles, are being installed on the four-track system, twenty of these bridges having been erected during the year.

Upper quadrant three position semaphore signals, displacing disc signals, have been installed between Parkview and Roselle Park, and between Penn Haven Junction and Weatherly.

Visible and audible crossing alarms have been installed at Valentines, Glen Summit Springs, Wyalusing, Lodi, Kendaia and Lancaster.

The telephone train dispatching lines have been extended east to Jersey City and Perth Amboy and west to Sayre. The entire system east of Sayre is now equipped with these facilities. The lines between Sayre and Buffalo are in course of construction and will be completed and in operation at an early date. These improvements not only permit of a substantial saving in expenses, but very materially increase the efficiency of train dispatching. Further benefits in this direction will be derived as soon as passenger and freight trains are equipped with portable telephone sets, so that immediate communication may be had with dispatchers in case of accident or delay. This installation is now being made.

FINANCIAL.

As referred to in the last annual report, your Board of Directors, acting with the approval of the stockholders, authorized an increase in the common capital stock from $40,334,800 to $80,000,000 and the issuance and sale of $20,220,550, or 404,411 shares, of such additional stock to shareholders at par. Proceeding under that authority the common capital stock of the Company has been increased by the issuance of 403,338 shares with a total par value of $20,166,900, being the entire amount offered to the stockholders, with the exception of 1,073 shares, or $53,650, which were unsubscribed. All stockholders having been notified of the terms and conditions of the subscription at their last known addresses, as well as by advertisement in the daily press, the subscription, under instructions of the Board of Directors, was closed on November 30, 1910. The proceeds were $20,166,900, against which have been charged only those expenditures representing capital outlays.

The funded debt of the Company was reduced during the year by the retirement of $6,000,000 Second Mortgage Seven Per Cent. Bonds, which matured September 1, 1910; $1,000,000 Collateral Trust Four Per Cent. Bonds, which matured in August and February; $1,170,000 Equipment Trust obligations which matured at various dates, including the small remaining issue of $180,000 of Equipment Trust Certificates, Series H, held in the treasury, a total permanent retirement of $7,170,000 of obligations. In addition, $2,268,000 Collateral Trust Four Per Cent. Bonds, $11,000 Middlesex Valley Railroad Company Five Per Cent. Bonds and $571,900 par value preferred stock and $387,900 par value consolidated stock of the Morris Canal and Banking Company, carrying dividends at the rate of ten per cent. and four per cent. per annum, respectively, were purchased and placed in the treasury. As a result of the retirement or purchase of these several obligations, the fixed charges of your Company have been reduced $646,476 per annum.

There have been received from the Trustee and placed in the treasury $10,000,000 General Consolidated Mortgage Four Per Cent. Bonds, issued under the provisions of that mortgage to reimburse your Company for expenditures incurred in previous years for additions and betterments to the property and the retirement of equipment trust obligations, making $13,000,000 of such bonds in the treasury. These with the $2,268,000 Collateral Trust Bonds, $2,400,000 Equipment Trust, Series I, Certificates and other securities now held as treasury collaterals available for sale or other use, place your Company in an exceedingly strong position financially.

Additional Fifty-Year Five Per Cent. Gold Debenture Bonds have been issued to the Lehigh Valley Railroad Company by those subsidiary companies to which advances were made for additions and betterments to their properties, the title, of necessity, being in their respective names. Such additonal bonds are as follows: Lehigh Valley Railroad Company of New Jersey, $139,000; The Lehigh Valley Rail Way Company, $297,000; Loyalsock Railroad Company, $20,000; Pennsylvania and New York Canal and Railroad Company, $133,000, and Easton and Northern Railroad Company, $5,000.

Your Company has also received from the Wyoming Valley Water Supply Company $87,000 of its Fifty-Year Five Per Cent. Gold Bonds issued in payment of advances made to that Company for capital expenditures in the development of its several water plants.

The investment your Company had in The Locust Mountain Coal and Iron Company, represented by the ownership of 6,618 shares of the capital stock of that Company, with a par value of $330,900, was sold for a cash consideration equivalent to the value thereof as carried on the books of the Company.

Following the practice that has obtained for the past three years, the book value of the capital stock of Coxe Brothers & Company, Incorporated, all of which is owned by your Company, was reduced by the sum of $1,000,000, Profit and Loss Account having been charged therewith. This fully covers whatever depreciation the property has suffered in the mining of anthracite coal from its lands.

The value of materials and supplies on hand at the close of the year amounted to $2,858,574.02. This is an increase over the preceding year and is due to large purchases of steel rails, ties and track fastenings at the close of the year, which are now being placed in the track.

The increase in the advances to subsidiary real estate companies is occasioned by the purchase of various parcels of land for future terminal extensions, additional right of way and for other purposes incident to the development of your property.

Working Assets are $41,139,127.93 in excess of Working Liabilities.

Semi-annual dividends of five per cent. each were declared in December, 1910, and June, 1911, upon the common and preferred capital stocks of the Company, payable respectively in January and July, 1911.

The cash and security balances have been verified and the accounts of the Company examined by certified public accountants, whose certificate as to the correctness thereof is attached.

GENERAL REMARKS.

The operations for the year under review have felt the full effect of the higher rates of wages paid employes. To this single factor may be ascribed almost entirely the increase in operating expenses apart from that naturally resulting from the transportation of a greater volume of traffic. As was mentioned in the last annual report, the principal increases granted to the various classes of labor employed by your Company were not effective until the latter months of that year and so cause an unfavorable comparison of the present year's operations with the past. Then, too, it must be recognized that the higher standard of present-day operations injects greater costs into the expense of transportation. The demands of the public are most exacting in the matter of equipment, time, facilities and service generally which, in view of the keen competition prevailing, must be met. Although the additions and betterments made to the property, together with various improvements and economies in the method of transportation, have been of benefit in holding the cost of operations in check, they were not, in themselves, sufficient to offset the increase in the cost of labor. Nor has there been any curtailment in the appropriations for maintenance where it would mean simply deferring needed expenditures to a future year and at greater expense. On the contrary, the property has been thoroughly maintained and it is in a most excellent and efficient condition. The high standard of service furnished shippers and the traveling public has likewise been sustained and new methods for its further improvement adopted as conditions would warrant.

Your Company in 1871 leased the property of the Morris Canal and

Banking Company. Since that time there have been but four years in which the canal property was able to earn its operating expenses. It has, therefore, been necessary for your Company to make up the deficits and, in addition, to pay the dividends of ten per cent. and four per cent., respectively, on the preferred and consolidated capital stocks of the Morris Canal and Banking Company and all interest charges, as called for in the lease. Transportation on small inland canals like the one in question has become obsolete, and this canal cannot be made to pay its cost of operation and is further complained of as an annoyance in many of the cities and communities through which it passes. Negotiations have, therefore, been had with the State of New Jersey looking to its abandonment. It is proposed that any abandonment will comprehend the retirement of outstanding bonds and stocks of the Canal Company, the settlement of suits in regard to the rights of your Company in the "Basins" at Jersey City used as terminals, the sale and conveyance of the Canal Company's property, the adjustment of certain taxes assessed upon the property used in the canal operations, etc. A Commission was appointed by the Legislature of the State of New Jersey to take up this matter, and an understanding has been reached covering the adjustment of all questions at issue, and the Commission so reported to the Legislature. The latter thereupon instructed the Commission to prepare a bill for the abandonment of the canal and the disposition of its property and to submit the same at the next session of the Legislature, at which time it is hoped the matter will be satisfactorily closed.

The operation of the Lehigh and New York Railroad, which was leased to your Company in the year 1895, has resulted in a loss of $120,303.80 for the year. A suit was brought some time ago by certain of the stockholders of the Company owning that railroad in which, among other allegations, it was claimed that the bases used in arriving at the results of operation were incorrect. In connection with that suit, expert railroad accountants were employed by your Company to examine into the books and accounts covering the operation, which examination has not indicated any unfairness in the charges for the operation of that property. The suit is still pending.

During the year sixty-eight new industries were located on the system, direct track connections having been made with twenty thereof.

56.84 per cent. of the total operating expenses, including outside operations, or $15,003,166.20, was paid direct to labor, being distributed among an average of 21,654 employes during the year.

The Company contributed $46,211.60 to its Employes' Relief Fund, which is an amount equal to the payments made by the employes themselves to that Fund.

At the request of many of the stockholders the common capital stock of your Company was listed on the New York Stock Exchange in the month of November, 1910.

Mr. William R. Butler, of Mauch Chunk, Pennsylvania, was elected a director to fill the vacancy caused by the death of the Honorable Simon P. Wolverton.

The acknowledgment of the Board is tendered to the officers and employes of your Company for their loyal and conscientious services during the year.

By order of the Board of Directors,
E. B. Thomas,
President.

COMPARATIVE INCOME ACCOUNT FOR THE YEARS ENDED JUNE 30, 1911 AND 1910.

	1911.	1910.	Increase or Decrease.
Operating Revenues:—			
Coal freight revenue	$17,155,534.15	$15,821,797.62	$1,333,736.53
Merchandise freight revenue	14,687,291.27	14,757,799.34	—70.508.07
Passenger revenue	4,568,029.75	4,330,172.45	237,857.30
Mail revenue	190,760.08	193,859.75	—3,099.67
Express revenue	453,819.83	462,437.70	—8,617.87
Other transportation revenue	360,717.36	356,165.22	4,552.14
Miscellaneous revenue	271,250.55	245,166.09	26,084.46
Total operating revenues.	$37,687,402.99	$36,167,398.17	$1,520,004.82
Operating Expenses:—			
Maintenance of way and structures	$3,620,176.26	$3,462,903.41	$157,272.85
Maintenance of equipment.	6,003,286.95	5,995,810.09	7,476.86
Traffic expenses	1,010,675.41	918,720.11	91,955.30
Transportation expenses	11,979,278.24	10,593,565.10	1,385,713.14
General expenses	793,901.50	713,148.52	80,752.98
Total operating expenses.	$23,407,318.36	$21,684,147.23	$1,723,171.13
Ratio of operating expenses to operating revenues	62.11%	59.95%	2.61%
Net operating revenue.	$14,280,084.63	$14,483,250.94	—$203,166.31
Outside Operations, Net	*320,170.33	*146,333.24	—173,837.09
Total Net Revenue	$13,959,914.30	$14,336,917.70	—$377,003.40
Taxes Accrued	1,145,476.69	1,106,761.89	38,714.80
Operating Income	$12,814,437.61	$13,230,155.81	—$415,718.20
Other Income:—			
Hire of Equipment—Balance	$90,324.66	$168,899.39	—$78,574.73
Joint facilities rents—Credits	244,756.92	240,114.27	4,642.65
Dividends on stocks	584,026.62	544,945.50	39,081.12
Interest on bonds	46,121.00	24,860.17	21,260.83
Miscellaneous income	710,509.42	427,638.53	282,870.89
Total other income	$1,675,738.62	$1,406,457.86	$269,280.76
Total Income	$14,490,176.23	$14,636,613.67	—$146,437.44
Deductions from Income:—			
Interest accrued on funded debt	$3,306,268.20	$3,806,436.17	—$500,167.97
Rentals of leased lines and guaranties	2,286,103.97	2,316,473.00	—30,369.03
Joint facilities rents—Debits	228,803.19	228,149.26	653.93
Miscellaneous deductions	168,993.88	148,154.41	20,839.47
Additions and betterments	980,549.42	843,877.30	136,672.12
Total deductions from income	$6,970,718.66	$7,343,090.14	—$372,371.48
Net Income	$7,519,457.57	$7,293,523.53	$225,934.04

*Deficit.

PROFIT AND LOSS ACCOUNT FOR THE YEAR ENDED JUNE 30, 1911.

	Dr.	Cr.
Balance, July 1, 1910	.....	$27,219,779.64
Net income for the year ended June 30, 1911	.....	7,519,457.57
Expenditures for Additions and Betterments deducted from Income, excluding Lehigh and New York Railroad	.....	967,829.00
Miscellaneous adjustments	.....	25,882.47
Property abandoned	$15,764.30	.....
Federal Excise Tax for calendar years 1909 and 1910	140,777.91	.....
Reduction of book value of capital stock of Coxe Brothers & Co., Inc	1,000,000.00	.....
Dividends:		
Five per cent. on preferred stock, paid July 14, 1910	$5,315.00	
Three per cent. on common stock, paid July 14, 1910	1,210,044.00	
Five per cent. on preferred stock, paid Jan. 14, 1911	5,315.00	
Five per cent. on common stock, paid Jan. 14, 1911	3,025,085.00	
	4,245,759.00	.....
Balance, June 30, 1911	30,330,647.47	.....
	$35,732,948.68	$35,732,948.68
Balance brought forward, July 1, 1911		$30,330,647.47

THE LEHIGH VALLEY COAL COMPANY.

REPORT OF OPERATIONS.

Philadelphia, September 18, 1911.

The Board of Directors herewith submit the annual report of the operations conducted by The Lehigh Valley Coal Company for the fiscal year ended June 30, 1911.

The net income of the Company amounted to the sum of $1,512,844.40, an increase of $376,301.42, as compared with the previous year.

The total production of anthracite coal from lands owned, leased and controlled by The Lehigh Valley Coal Company and affiliated companies, including that mined by tenants, was 9,021,206 gross tons, an increase of 928,266 tons, or 11.47 per cent., as compared with the preceding year.

The percentage of sizes above pea produced by the mining operations of the Company was 65.57 per cent., an increase of 1.03 per cent.

The operations conducted on the Snow Shoe lands produced 236,930 gross tons of bituminous coal, an increase of 1,952 tons.

The total expenditures for improvements and betterments to the property deducted from income during the year amounted to the sum of $444,677.

In the earlier days of its history, The Lehigh Valley Coal Company leased certain of its coal properties to a number of different parties for the mining of anthracite coal, under which it received as rental varying rates of royalty as the coal was won from the land. Whether the poor financial condition of the Company at that time rendered it impossible to raise funds to construct its own breakers for the purpose of increasing the production, or whether there were other reasons, is not apparent at this time. The present management, however, is not continuing such a policy, believing rather that the interests of the Company are best protected by conserving its natural resources for its own use. Not only have the rentals received in the majority of such cases been small, compared with the value of the property, but there have been many complications arising out of these old leases, as is natural in such an uncertain and hazardous enterprise as anthracite coal mining where the conditions are constantly changing. In certain instances the leases provided for the mining of coal from veins either above or below those mined by the Company and vexatious questions have arisen in the matter of ventilation and drainage. Then, too, the mining by a tenant is apt to be more wasteful than that conducted by an owner, resulting in the loss of considerable tonnage which might otherwise be won. It has recently, therefore, been the policy of your Company, wherever satisfactory terms could be agreed upon, to take over from its tenants their operations by a surrender of the lease, the Company purchasing whatever improvements have been made by tenants upon the land in the way of breakers, machinery or other property incident to the mining operations.

Two such leases were taken over in the previous fiscal year and mentioned in that annual report. During the present year the operations conducted by the Austin Coal Company on the lands of your Company were assumed by the purchase of the entire capital stock of that company, the corporation passing out of existence by the expiration of its charter. In addition the lease made in 1884 of certain lands to Lentz & Company, operating at Park Place, Delano and Mahanoy Townships, has been surrendered to your Company for a consideration that included the purchase of all the breakers, machinery and running supplies. Payment was made part in cash and the balance in short term five per cent. notes secured by a coal lease mortgage on the property surrendered, the notes maturing in ten annual instalments, with the option of redemption by the Company upon reasonable notice.

Extensive operations are conducted by your Company under a lease of property known as the Everhart Lands, in which the Company has for some time held a one-half interest. An additional interest, approximating four-tenths of the whole, was purchased during the year, leaving about a one-tenth interest outstanding. One, two and three-year five per cent. notes, in equal amounts, were given for the major portion of the consideration, the balance being paid in cash.

The Company, further, has purchased for cash the entire capital stock of The Locust Mountain Coal and Iron Company, which owns certain coal lands near Mt. Carmel, Pennsylvania, and from which your Company has been mining, under lease, for many years.

Current Assets are $5,423,694.10 in excess of Current Liabilities.

Certified public accountants have verified the books and accounts of the Company and have furnished a certificate to that effect.

By order of the Board of Directors,
E. B. THOMAS,
President.

PROFIT AND LOSS ACCOUNT OF THE LEHIGH VALLEY COAL COMPANY FOR THE YEAR ENDED JUNE 30, 1911.

	Dr.	Cr.
Credit balance, July 1, 1910	.....	$3,393,442.67
Net income for year ended June 30, 1911	.....	1,512,844.40
Miscellaneous adjustments	$42,087.24	.....
Balance, June 30, 1911	4,864,199.83	.....
	$4,906,287.07	$4,906,287.07
Credit balance brought forward July 1, 1911		$4,864,199.83